

THE
CALCUTTA JOURNAL
OF
MEDICINE:

A MONTHLY RECORD OF THE MEDICAL AND AUXILIARY SCIENCES.

तदेव युक्तं भैषज्यं यदारोग्याय कल्पते ।
सचैव भिषजां श्रेष्ठो रोगेभ्यो यः प्रसोचयेत् ।
चरकसंहिता ।

That alone is the right medicine which can remove disease :
He alone is the true physician who can restore health.

Charaka Sanhitā.

EDITED BY
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[No. 1

OURSELVES—AN APPEAL.

WE publicly declared our faith in the truth in Homœopathy by reading an address "On the Supposed Uncertainty in Medical Science and on the Relation between Diseases and their Remedial Agents," at the Fourth Annual Meeting of the Bengal Branch of the British Medical Association, held on the 16th February, 1867.

We at once found that, though a Vice-President of the Association, we had become an outcast in the profession, denied professional fellowship in every sense of the word. But what was most strange, unjust, and intolerable was that the only professional journal then in existence was shut against us even when we had to write in self defence, in correction of the grossest misrepresentations which were freely and unhesitatingly admitted into its pages.

Though thus ostracized we disdained to ventilate professional questions in lay papers, which would have been not only impracticable but improper and undignified. But the very fact of our ostracism for the sake of truth and conscience by men who boast of belonging to the most learned and liberal and sacred profession convinced us of the absolute necessity of the ventilation of these questions, questions which affect not only the profession but humanity at large. Reluctant as we were to be sectarians we were thrown into an apparently sectarian position.

worthy of it, it is imperatively necessary that a journal conducted by men who can represent and maintain its real scientific character, should exist. But for its continued existence there must be professional support not only in the shape of subscriptions, but, what is of much greater value, in the shape of contributions of original articles and cases and provings. Notwithstanding that we have been repeatedly making appeals for such support we are sorry to say that we have not received it to the extent we should have. Verging on the outer limit of the scriptural span of human existence, burdened with infirmities—the penalties of age, and exhausted by incessant work and long-continued sufferings of disease, we find that we have come to our journey's end, and for the sake of the blessed truth of Homœopathy we make our final appeal, especially to our younger colleagues, in the hope that it will be responded to with the enthusiasm worthy of the cause we have all at heart.

We take the liberty of quoting what we said on the subject in our "History of Homœopathy in India," submitted to the International Homœopathic Congress of 1896: "I know very well from my personal experience that this (that is, want of support from our colleagues) is due more to want of time than to anything else. Our number being small, and the demand for our services being great, we are all busy men. But still we must not forget that the busiest men work the most and that we owe a duty to the profession, which means to humanity. If we bear in mind what Bacon said:—'I hold every man a debtor to his profession, from the which, as men of course doe seeke to receive countenance and profit, so ought they of duty to endeavour of themselves, by way of amends, to be a help and ornament thereunto,'—if we fully understand the significance of these words we shall look upon it as a part of our duty to keep a record of our experiences and publish them for the benefit of others. And we shall be able to fulfil this duty better if we remember the pregnant saying of the same philosopher—'Reading maketh a perfect man; conference a ready man; and *writing an exact man*.' It is only by the habit of putting in writing what we see and think and feel that we can attain to precision in our knowledge. For it is only when we do this that we begin to detect the defects of our observation, the want of coherence in our ideas, and the hazy-ness in our feelings."

SMALL-POX; ITS PROPHYLAXIS AND TREATMENT.

THE SCOURGE OF SMALL-POX is becoming worse and worse in Calcutta, notwithstanding the multiplication of vaccine operations. The quinquennial periods of recrudescence seem to be shortening, so that the disease is threatening to become almost endemic. We have in Homœopathy resources, both prophylactic and curative, which can cope with the disease in all its forms. We, therefore, give below the whole of the exhaustive article on it, from Raue's "Special Pathology and Therapeutics." By following the directions here given, the attack of the disease may be warded off much more efficiently than by vaccination and without any of its attendant evils; and the disease itself, when it has already invaded the system, may be shorn of its virulence, and the patient conducted to a happy recovery.

Its course and Symptoms. After the lapse of nine or ten, sometimes more days of incubation, the initial stage, or the *stadium invasionis*, begins with a shaking chill, or repeated chilliness, which is followed by a violent fever. The temperature rises on the first day to 103° or 104° F., and on the second or third day to 105° or 105·5°, and even 107° F. This high fever is accompanied with a number of painful symptoms of the head, throat, stomach, and general body; in some cases with delirium and convulsions. No other, however, is so characteristic of the disease as the *dreadful buckache*, with which it is in most cases associated. The fever rises continually during the first three days, showing slight remissions only in the morning. On the evening of the third day it reaches its height. Only in rare cases is this premonitory stage absent. In some epidemics the initial stage is marked by an *erythematous* eruption, either diffuse or measly; or by a *hæmorrhagic* exanthem, which consists of extremely small punctate, often pin-head sized, hæmorrhages in the epidermis, at times so closely crowded together that the impression of a diffuse redness is produced. Sometimes both forms are combined and we see, then, petechiæ upon an erythematous base. The petechial eruption has its favorite seat on the lower region of the abdomen, on the genitals and the inner surface of the thighs; also on the lateral surfaces of the trunk up to the axillæ, the contiguous portions of the arms and the pectoralis major muscles. This eruption generally appears on the second day and

lasts from twelve to twenty-four hours. As a rule the petechial form lasts longer.

The second stage, the *stadium eruptionis*, commences on the evening of the third day. There appear little red spots first on the face. If very numerous, they coalesce like measles-spots, with which they might be confounded if it were not for the granulated feel which they present to the sense of touch. On the second day the eruption appears on the neck, chest and back; and on the third day it spreads over the extremities. The granulated feel of the eruption is due to the formation of papules in consequence of an enlargement of the cells of the rete Malpighii, which pushes the epidermis up. Soon an exudation of clear fluid from the papillary layer converts the papules into vesicles, and separating the cells into small groups, a reticulated cavity is formed, which contains pus-corpuscles and the epithelial framework. This is the reason why a pock never discharges fully if opened only in one place. After the formation in vesicles, most pocks show a *central depression* or *umbilicus*, which some think to be due to the presence of a hair follicle or the duct of a sweat gland in or over its centre; others teach that the periphery of the pock swells more rapidly than its centre, and thus becomes more prominent. This umbilicus disappears when the pustule is fully ripe, but reappears again from the earlier drying of the centre. It requires about six days for the ripening of the pustules; or counting from the time of invasion, nine or ten days. Simultaneously with this eruption on the skin, an eruption of the same character appears upon the different mucous membranes. On the conjunctiva it causes a flow of tears, photophobia, and in severe cases total closure of the eyes for many days; in the mouth it causes salivations; in the pharynx, difficulty of swallowing; in the larynx, hoarseness and cough; and in the genitals, itching and burning pain. Even the external portion of the dura mater has been found studded with pustules filled with matter. In several instances the suppuration was of such a character as to destroy the membrane where the pustules existed.

The full development of the eruption is generally attended with great relief to the patient; all the pain lessens and the fever decreases considerably. In cases of variola confluent only, the relief is not so marked. This is, however, not the end of the trouble,

On the ninth or tenth day the fever commences to rise again; it is the beginning of the *stadium suppurationis s. maturationis*. At this time the pustules enlarge still more, the surrounding skin commences to inflame and to swell, and a red areola forms round each pustule. Redness and swelling coalesce from all sides, and constitute a diffused, erysipelatous appearance of the whole face greatly disfiguring the patient. This process gradually spreads over the whole body, in the same order in which the eruption commenced to appear. The patient complains of great tension and burning of the skin, and the affections of the eyes, mouth, throat, larynx and genitals increase in corresponding order. The temperature rises again from 102° and 103° to 104° F., frequently attended with chilly sensations; it rises according to the intensity of the inflammation of the skin; and does not abate until the dermatitis reaches its acme. This renewal of heat is called the *secondary or suppurative fever*. It may be attended with delirium and symptoms of adynamia and general paralysis, in consequence of the absorption of pus into the blood. In other cases it combines with a hæmorrhagic diathesis, when the contents of the pustules become bloody, and bloody extravasation within the skin or hæmorrhages from different mucous membranes take place, *hæmorrhagic small-pox*; or though only in rare cases, portions of the inflammation mortify and discharge a badly-looking ichor, *gangrenous small-pox*. Besides all this, as the variola-poison is apt to localize during this stage in serous membranes and parenchymatous organs, we meet with a number of different complications, such as: dyspnœa, stitching pains in the chest, cough, bloody expectoration, pneumonia, pleuritis, pericarditis, meningitis, suppurative inflammation of the joints, periostitis, subcutaneous and intermuscular abscesses, inflammation and suppuration of lymphatic glands, suppuration of the eyes with hypopion, and croupous exudations in the larynx and trachea.

The last stage, or the *stadium exsiccationis*, usually commences about the eleventh or twelfth day. The pustules burst and discharge their contents, or dry up, and become covered with hard brownish crusts. There is still some fever at first; it lessens, however, continually, and with it gradually disappear all the painful symptoms which arise from the eruption on the different

mucous membranes. The crusts now gradually drop off, at first, those which cover the most superficial pustules ; they leave dark, red, somewhat elevated spots, which, however, after some time, entirely disappear. Not so those which form upon deep-seated ulceration. They adhere a long time, and leave, after dropping off, an uneven scar, which looks at first red, but by degrees grows conspicuously white, to remain so for life. In confluent small pox the destructive process is of a still greater extent, in circumference as well as in depth, and frequently the remaining scars greatly disfigure the face, similar to scars of deep burns. This is the course and progress of variola.

Varioloid runs a similar but much milder course ; all its stages are milder and shorter ; its secondary fever is much less intense, or wanting altogether ; and its suppurative process does not destroy the cutis, so as to leave scars.

The *Purpura variolosa* represents the worst course which small pox can take in the initial stage. It attacks young and robust persons by preference, begins with rigor, headache, very intense pain in the back, and great prostration. Within eighteen to thirty-six hours a scarlet-like erythema appears over the entire body, which is mingled with petechiæ and larger cutaneous hæmorrhages, varying in size up to that of a silver dollar, which usually become confluent upon the chest and abdomen. The face is rendered red and puffy, the conjunctiva bloodshot, and large black rings are formed round the eyes, through hæmorrhage into the cellular tissue of the lids and their contiguous parts. The tongue is swollen and covered with a whitish-yellow coating, and the throat is affected with diphtheritic exudation, from which issues a terrible odor. There is pain in the pit of the stomach, nausea and vomiting of bile and blood, bloody diarrhœa and offensive urine. In some cases we meet a troublesome cough, with bloody expectoration, and in women hæmorrhages from the womb. The temperature rises to about 104° F. ; the intelligence is usually unimpaired until a short time before death, when the body, particularly the trunk, assumes a blackish or leaden-gray hue. Some patients die within three days after the beginning, or even earlier, some survive the sixth day. (Curschmann.)

Prognosis.—The fewer the pustules, the lighter the case ; confluent pustules are much more severe. Hæmorrhagic, septic and gangrenous small-pox are not absolutely fatal, but very dangerous.

When typhoid symptoms are added, the prognosis must be very guarded.

The younger the individual the greater the danger. Very young infants are always in great danger.

In pregnant females it brings on abortus.

Inebriates are liable to be taken with delirium tremens.

Any of the complications mentioned makes the diagnosis doubtful.

PREVENTIVES.

Vaccination is lauded and equally condemned. The humanized virus and the lancet have given place to the ivory point and the cow-pox virus. This is an improvement. Syphilis at least is thus prevented from being propagated any longer by vaccination.

Internal vaccination is recommended and practiced by Dr. Kaczkowsky, and consists in the administration of one dose of Sulphur 30 which is left to act for fourteen days, and is followed by the administration of *vaccinum*, or *variolum*. About the seventh or eighth day febrile symptoms occur, and on the eighth, ninth or tenth day a granular eruption, of the size of poppy seeds, appears under the skin, which soon ripens and heals. This process has never been carried out to a sufficient extent so as to enable us to judge of its efficacy.

Dr. H. Boskowitz, or Brooklyn, recommends the virus of the *malanders* or *grease* of the horse either for inoculation, instead of cow-pox virus, or for internal use in a high trituration. The successful internal application of *malandrinum* as a preventive has been confirmed this season (1880-81) by Dr. R. Straube and myself. Dr. Hering has advised the sprinkling of a weak solution of *cyanide of potassium* about the house, because such mechanics as use it in their manipulations, have been observed by Dr. Korn-dorfer to be exempt from the disease in small-pox epidemics, because the sulpho-cyanide of potassium, which is present in the saliva of the healthy, disappears from there in small-pox patients and appears instead in the contents of the pock. This has been demonstrated by me about the year 1850. Still others have used *bdptis*, or *sarracenia*, as preventives, with great success. Who shall gainsay it? They all were trustworthy observers, and epidemics of small-pox change as much in their peculiarities as epidemics of scarlet fever or any other disease.

THERAPEUTIC HINTS.

Apis. Where there is an erysipelatous redness and swelling, with stinging, burning pains; stinging, burning pain in the throat; dyspnoea; suppression of urine.

Arsen. In asthenic cases, with great sinking of strength, burning heat, frequent small pulse, great thirst, great restlessness, and when the pustules sink in, and their areolæ grow livid.

Baptis. Typhoid symptoms; pustules appear more thickly in throat than on skin. It proved exceedingly effective during an epidemic, preventing even the offensive effluvium. (E. Williams, *B. J. H.*, 1873, p. 344).

Bellad. During the first stage; high fever; congestion to the head; sleeplessness, with desire to sleep; convulsions. Later, sore throat and cough.

Bryon. At the commencement, and also when the chest symptoms indicate it.

Calc. carb. Very important during dentition.

Camphora. In those dangerous cases where the swelling suddenly sinks in and the pustules suddenly dry up, showing a complete giving out of the life-forces.

Carb. veg. When the eruption seems to recede, with cold extremities, small, empty pulse, oppression of chest and harrassing cough.

Canthar. Dysuria and bloody urine; the eruption assuming a hæmorrhagic tendency.

Hepar. Croupy cough; suppuration.

Hydrast. cun. Has been given successfully when there was great swelling, redness and itching, and great soreness of the throat. Is said to prevent the pitting to a considerable degree.

Melandrinum 30. Has been given during the last epidemic (1880-81) by Dr. R. Straube, several others and myself with great success as a preventive as well as a curative agent. It prevented the suppurative fever, or lessened it at least to a considerable degree, and took away all offensive exhalation. Cerebral symptoms, such as delirium and hallucinations necessitated the interposition of *stramon*. While great soreness of the throat and cough required *bellad*. An article on *Melandrinum* by Dr. R. Straube, which contains a partial proving of this remedy, can be found in the *North American Journal of Homæopathy*, August number, 1881.

Mercur. Especially during the suppurative stage ; great flow of saliva ; dysenteric discharges from the bowels ; syphilitic taint.

Phosphor. Hæmorrhagic diathesis ; bloody contents of the pustules ; hard, dry cough ; bronchitis ; hæmorrhage from the lungs. Typhoid form.

Phosph. ac. Typhoid conditions subsultus tendinum ; great restlessness ; great fear of death ; the pustules don't fill with matter ; some degenerate into large blisters, which burst and discharge a watery fluid, leaving the surface excoriated ; watery diarrhœa.

Rhus tox. Typhoid symptoms, dry, cracked tongue ; sordes on the lips and teeth ; great debility and restlessness ; the eruption shrinks and looks livid.

Sarracenia. Has been used empirically, and is said by some to shorten and to ameliorate the progress of the disease ; others deny it. The fact of it is, we do not know any characteristic indications of the remedy as yet.

Sulphur. Is indicated where there is any tendency of metastasis to the brain during the suppuration ; is indispensable occasionally as an intercurrent remedy when others seem to fail ; and Goullon advises its uniform use in the stadium exsiccationis.

Tart. emet. Has been found by some to ameliorate the progress of the disease.

Thuja. Recommended by von Bœnninghausen as a preventive as well as a curative agent. He states that it shortened in the epidemic of 1849, in his neighborhood, all cases, and prevented all scars.

Vaccininum. Has been used undoubtedly with great benefit in small-pox ; its use has shortened and ameliorated all stages quite considerably. *Sulphur* was given afterwards.

Variolinum. Makes the progress of the disease much milder ; quickly removes all dangerous symptoms ; changes imperfect pustules into regular ones, which soon afterwards dry up ; promotes suppuration on the third day, and exsiccation on the fifth, sixth and ninth day, and prevents all scars. This is the unanimous testimony of ten physicians who have used it in different epidemics.

ODE TO HAHNEMANN.

READ AT THE INAUGURATION OF THE HAHNEMANN MONUMENT*
 BY DR. WILLIAM TOD HELMUTH,* THE GREATEST LIVING,
 SURGEON IN OUR SCHOOL.

I.

Oft times in far off regions of the North,
 When Autumn's glories all the wood disclose,
 The sinking sun its golden rays pours forth
 Till all the scene in quivering splendor glows.
 The snow-capped peaks grow rosy in the light
 And sapphire clouds are touched with points of fire,
 Which, sinking slowly in the arms of night,
 Watch lingering still to see the day expire.

II.

Just so the century in grandeur dies,
 Reflecting splendour on her closing years,
 Where genius-born her myriad conquests rise
 Midst hopes triumphant and 'mid seas of tears.
 Arise! O Man, and let thy heart rejoice
 That thou wert born in these prolific times,
 When science teaches with prophetic voice
 And art in majesty her place defines.

III.

Amid the ashes of defeated hopes,
 Amid the wreckage of a thousand lives
 That strew the pathways on ambition's slopes,
 The mighty genius of man survives.
 And fame, fair goddess in her proud array,
 With golden trumpet pointing to the sky
 Sounds through the arch of Time her grandest lay,
 The works of men whose names can never die.

IV.

By Darwin's Thought the problem of our lives,
 So long unsolved this century proclaims
 In one great song, "The fittest still survives;
 Natural selection for ever reigns."
 And still along Time's avenue there peals
 Resounding on them through the tramp of Fame,
 As Herbert Spencer to the world reveals
 The science that has glorified his name.
 Now evolution stretcheth forth her arm

* Before reading the Ode, Dr. Helmuth observed :—" Ladies and Gentlemen —Perhaps for the better understanding of what is to follow, I should say that the ode I am about to deliver will contain in its earlier portion some references to the greatest discoveries that have been made in this century, and that then the final tribute to Hahnemann will be paid."

To hold "the fittest" that the Earth contains;
The cold agnostic shudders in alarm;
God still is God—omnipotence remains.

V.

Five decades back our 'scutcheon, with its stars
And stripes in glory waving to the sky,
Was tarnished by the legal right that bars
Equality to men, and slavery.
With all its horror, all its crime and lust,
Cast its black shadow o'er this mighty land.
Lo! then arose a fearless man and just,
And to the Nation issued his command.

VI.

Then all the fiends of internecine war
Rose like the hideous Phantoms of a dream,
But slavery was stricken to the core
And Abra'm Lincoln's will became supreme.
Oh! martyr'd President, thy native land
As this great century is dying now,
Uplifts in majesty its grateful hand
And lays the wreath immortal on thy brow.

VII.

The lurid lightning flashing through the sky,
Is caught and held subservient to man's hand,
Who ladens it with thought and bids it fly
Throughout the farthest confines of the land.
O'er mountain heights, across the ocean's waste,
Past arid plains or through the trackless snow,
Revolving continents each other know.

VIII.

The undulations of the summer breeze
An interchange of thought convey.
The force of tides that swell the boundless seas,
Man's subtle intellect controls to-day.
The planets whirling in the abyss of space,
The rocks that tell us when this earth grew cold,
The science of this century unfold.

IX.

And Woman, last of God's creative art
(Thou great enigma to the creature man),
Where in the rush of progress is thy part,
Since first the century her course began?
Health, beauty and obedience were then
The chiefest characters thy sex displayed,
Adored by passion—trifled with by men,
Honored and loved, neglected or betrayed.

X.

Look how she stands, now better understood,
 The light of progress shining in her eyes
 In all the glory of true womanhood
 As high and holy aspirations rise.
 The arts and sciences stand open now
 The great professions beckon her to come
 To join their ranks—and still the marriage vow
 Surrounds with sacredness the ties of home.

XI.

But we who 'neath the Æsculapian shield
 Are linked together, in one sacred bond,
 To battle on humanity's field
 For health and life and all that lies beyond,
 Who, when the pestilence is stalking forth,
 Slaying its victims with mephitic breath,
 Like whirlwinds sweeping from the icy North—
 Draw forth the sword to battle with King Death.

XII.

What has the closing century revealed,
 To aid our efforts in th' unequalled strife,
 The constant battle with a cause concealed,
 That saps the very fountain heads of life.
 What has it done? Let Anesthesia sing,
 Let Antisepsis clap her cleansed hands,
 And microscopic revelations ring
 With songs of progress from far distant lands.

XIII.

God sent no suffering to the pristine man
 Till Adam ate of the forbidden tree,
 Then with a laugh the demon Pain began
 To tear the tendrils of humanity.
 The centuries rolled, and still the race
 Was born and tortured by unceasing pain,
 Mankind forever striving to efface.
 Its ravages with antidotes in vain.

XIV.

Then came a time—Oh, country mine, be proud,
 For thou wert first the conqueror to find
 Before whose breath the Evil Spirit bowed—
 Amid the thankful plaudits of mankind!
 The surgeon now God's inmost temple sees,
 While Anesthesia her censer swings,
 The Demon conquered from his victim flees
 And Science jubilant her pean sings.

XV.

To us, Sectarians as we ever are
 (As all must be who hold a special creed),
 Arose within this century a star,
 To guide us in our therapeutic needs.
 The storm of opposition touched it not,
 The shafts of ridicule pass'd harmless by,
 Traditions—dogmas could obscure no jot
 Of its transcendent truth and purity.

XVI.

While Anesthesia in glory stands,
 And Antisepsis o'er the world displays
 The grand results minute technique demands,
 To bless the Surgery of later days,
 Above them both with more expansive reach,
 The Star of Truth, by Meissen's sage defined,
 Shines o'er the earth, humanity to teach
 The splendid triumphs of the Master's mind.

XVII.

No mighty truth since Time his course began
 Has shown its full effulgence to the world
 Till it has fought the stubborn will of man
 By passions' vehemence against it hurled.
 Kepler, Newton, Harvey and Jenner knew,
 And felt the obloquy of error born,
 And Christ himself, the perfect man and true,
 Was crucified amid the cries of scorn.

XVIII.

Great is the hero whose stupendous mind
 Upon this dying age its splendor throws,
 Self-vanquished in his efforts for mankind,
 By all the ardor perfect love bestows.
 If statesmen, poets, scientists, and men
 Who deal in life's affairs, could later see
 Their works as written by historic pen
 They'd stand confounded by Time's alchemy.

XIX.

Could Samuel Hahnemann arise to-day
 To gaze bewildered on this earnest throng,
 To view this ceremonial display,
 Perhaps to listen to this humble song,
 Could he this monumental bronze behold,
 Reared to himself, and graven with his name,
 Could he by some mysterious voice be told
 His name was writ upon the scroll of fame,

With streaming eyes—lost in profound amaze,
 But modest still—the porcelain painter's son
 Would prostrate fall in gratitude and praise
 For this fruition of love's labor won.

XX.

Look down, O spirit, from thine unknown sphere,
 Behold the days of persecution past,
 See this assemblage of thy followers here
 Proclaim the triumph of the truth at last.
 Behold the once torn waters of the sea
 Of Therapeutics breaking on the rocks
 Of doubt and error and uncertainty,
 Tearing the life-boat with incessant shocks—
 Now, guided by Precision's better chart,
 On it the mariner shall safer steer,
 And taught by thee, with thankfulness of heart
 Shall watch the beacon and dispel his fear.

XXI.

Among the benefactors of thy race,
 Who stamp their impress on the fleeting years
 That grow to centuries, shall be thy place
 If honor, ceded by thy willing peers,
 Among the epoch-making men whose thought
 Illuminates the world, there shalt thou stand,
 Thy battle for humanity well fought,
 Bearing thy mottoed banner in thy hand;
 Then shall the sons of Æsculapius bring
 Their votive offering of thanks to thee,
 And all the nations of the earth shall sing
 The grand Te Deum—Homœopathy.

EDITOR'S NOTES.

The Circulatory Apparatus in Pregnancy.

E. Bionmi (*Annali di Ostetricia e Ginecologia*, xxii, 753, October, 1900) has investigated anew the question of cardiac hypertrophy in pregnancy. From clinical observations upon 28 pregnant women and from the examination of various animals (cow, sheep rabbit, cat, guinea pig) in a pregnant and unimpregnated state, the conclusion is drawn that there occurs a physiological and transitory hypertrophy of the cardiac muscular fibres. Observations of the blood of both hospital and private patients showed that pregnancy induced a state of slight anæmia, so slight as not usually to produce morbid symptoms; this tended to disappear with the establishment of lactation. The cardiac hypertrophy is to be accounted for by the increase in the mass of blood and in the abdominal pressure, along with the addition of a new zone of circulation and the irritant action of excrete fetal products circulating in the maternal blood.—*Brit. Med. Journ.*, Dec. 22, 1900.

The Spitting Nuisance.

The National Association for the Prevention of Consumption and other Forms of Tuberculosis is making vigorous efforts to check the disgusting and dangerous habit of spitting in places of public resort. It has induced several railway companies to help in this crusade in the cause of public health and decency by allowing cards appealing to the public not to commit this abominable nuisance to be placed in waiting rooms and carriages. Of such cards 1,350 have been sent to the London and North-Western Railway, 500 to the London and South-Western Railway, 1,500 to the Midland Railway, 100 to the North Staffordshire Railway, 350 to the Great Central Railway, and 200 to the Cheshire Lines Committee. The aid of the London County Council has been secured, and 125 cards have been sent for distribution in places within its jurisdiction of that body. Fifty cards have also been distributed to workshops, hotels, and hospitals.—*Brit. Med. Journ.*, Dec. 22, 1900.

The Psychoses of the Menopause.

Chapin (*Philad. Med. Journ.*, August 25th, 1900) endeavours to show that the danger of insanity beginning during the menopause has been exaggerated. Out of 8,320 women admitted into various institutions, only 188 were specified as becoming insane at the menopause, nor was it clear how many out of the 188 went mad through

the special changes in the genital tract at that period of life. The statistics of the Pennsylvania Hospital show that between the ages of 45 and 55, representing the usual range of the menopause 975 men and only 876 women were admitted into that institution. S. Weir Mitchell, in his Analysis of 3,000 Cases of Melancholia, shows that the exact percentage of cases between the ages of 45 and 50 was 20.2 in men and 21.4 in women, the difference being very, very slight, and once more not due, on any distinct evidence, to the local changes of the menopause. The dread or risk of insanity at the approach of the menopause in a woman ordinarily of sound mental and psychical health and inheritance has no better foundation than a popular delusion based on borrowed fears.—*Brit. Med. Journ.*, Dec. 15, 1900.

Congenital Absence of Fibula.

W. A. Wood (*Intercol. Med. Journ. of Australasia* v, 260, May 20th, 1900) reports two cases of congenital absence of the fibula. In one of these, an infant 6 months old, no fibula was to be felt in the right leg, although both malleoli were present. The foot had three small toes and one large one, which the *x* rays showed to be a fusion of two toes. The right tibia had a slight antero-posterior bend. The left leg had no fibula; there was an acutely curved tibia with anterior convexity; the left foot was in talipes valgus position, and had two small toes and one big one. There had been constant pain in the uterus during pregnancy. In the other case, a child 2½ years old, the birth had been a face presentation. The thighs were much bent, and had been so at birth. The mother was normal, but had had a miscarriage of twins and a deadborn infant. Both the thighs were arrested in development, the skin of the perineum being but 1 inch from the knee. The fibula was absent on the left side, and the foot was dislocated wholly outwards; there were three small toes and a big one. The right leg was normal. The *x* rays showed apparent dislocation of both hipjoints, but the child could walk. In this case also there had been severe pain in the uterus during pregnancy.—*Brit. Med. Journ.*, Dec. 22, 1900.

A Proteolytic Ferment in Milk.

It has often been conjectured that a peculiar ferment existed in milk of the nature of the pancreatic ferment, but apparently the investigation of the subject has not led to any very definite results. The point is of considerable interest in relation to the alteration effected in the dietetic properties of milk when milk is heated or

sterilised. In the sterilised milk diet of infants, for example, scurvy rickets sometimes results which, however, would appear to be avoidable by the addition of raw meat juice or the juice of a fresh lemon. It is maintained by some that there is an element of vitality in milk which is essential to its satisfactory assimilation and that this life element is destroyed, of course, by heat or by sterilisation. Others regard the alteration to be due to certain chemical changes brought about in the proteids by heat. The recent discovery of a definite ferment in milk may, however, throw a new light upon this question. The ferment known as galactase is similar to trypsin and is present in the milk of all animals. It is more active in moderately alkaline than in neutral or faintly acid solutions. It is remarkable that trypsin and pancreatin differ from galactase in not forming ammonia and differ also from other ferments in that the nitrogen compounds formed in digestion by its agency are more equally divided in albumoses, peptones, amides, and ammonia. Further, formalin is found to weaken distinctly the action of galactase, an observation which very pertinently bears upon the legitimacy of employing at least one preservative in milk, at least for infant and invalid uses.—*Lancet*, Dec. 15, 1900.

Treatment of Skin Diseases by X Rays.

Jutassy (*Wien. skin. Rund.*, August 12th, 1900) reports several cases of skin disease treated by the x rays. Case I: Lupus vulgaris in a woman aged 24; exposed to an intense current at seven sittings; total duration of exposure four hours. The patch of lupus became a bleeding raw surface, which healed under antiseptic dressings in a month and formed a smooth scar. Case II: Lupus erythematosus of the nose and face in a woman aged 28; duration of disease eight years: seven exposures were given, of a total duration of five hours and a half. The central skin of the diseased area came off in a thick layer. A second series of six exposures was given; total duration three hours. Soon after this the peripheral disease disquamated, and the face was clear and remained so for eighteen months. Some small recurrences however, occurred. Case III: Chronic eczema of the hand in a man aged 29; duration of disease seven years; eight exposures were made, duration two hours and a half altogether. A crust formed on the affected skin; this healed and left the skin healthy. Case IV: Hypertrichosis of the face and neck in a woman aged 25; ten sittings were given with a total exposure of three hours and a half. A fortnight afterwards a brownish erythema appeared, and the hairs were completely shed. Two months later

new hairs grew at the angle of the mouth, and a second series of sittings was given, combined with electrolysis of some of the larger hairs. A good result was obtained. Case V: *Nævus flammeus* (port-wine mark) in a man aged 22; fourteen hours' exposure at ten sittings, the eyebrows, upper lip, and eyelids being protected. A pustular dermatitis resulted, which healed under simple dressings. Three months later the *nævus* had disappeared, and was replaced by a smooth whitish scar. Unfortunately pigmentation appeared at the edge which resisted all treatment.—*Brit. Med. Journ.*, Jan. 5, 1901.

The Regeneration of the Crystalline Lens.

Randolph (*Johns Hopkins Hospital Reports*, vol. ix), as the result of his experiments, draws the following conclusions: (1) Regeneration of the lens in the rabbit's eye occurs only when some portions of the lens are left behind at the extraction. (2) Removal of the lens in its capsule is followed by a negative result. (3) Panophthalmitis will lead to a negative result. (4) The volume of the regenerated lens may be equal to that of the original lens. (5) The regenerated mass is lenticular, though sometimes it is ring-shaped and at other times semilunar. (6) The reason why positive results occur so much less frequently than negative ones is because we are unable to protect the animal from infection after the operation. We have nothing to take the place of the after-treatment which is always employed in cataract operations upon human beings. (7) Theoretically one would suppose that the longer the animal were allowed to live the greater would be the volume of the regenerated mass. This, however, was not the case. In one instance, when an animal was killed fifteen months after the extraction of the lens, the regenerated lens was about equal in size to that seen in a rabbit killed after six weeks. (8) A mild iritis, lasting for a week or ten days after the operation, is conducive to a successful result. This may be explained by the increased vascularity of the parts which lie next to the lens. (9) In the case of the newt, extraction of the lens is followed by its regeneration. (10) Regeneration (in the newt) occurs even when the lens has been removed in its capsule, so that the new lens must take its origin from tissue having a different physiological value, and, as the experiments of Wolff have shown, this structure is the iris. He is not sure that the phenomena noticed in these experiments on rabbits and newts find any conspicuous analogy in the history of cataract in human beings, although activity of the capsular epithelium after the extraction of cataract is often to be seen.—*Brit. Med. Journ.*, Dec. 15, 1900.

The Physical Effects of Emotion.

A very interesting experience is related in the *Times* of December 28th, 1900, by a gentleman who was present during a performance at the Grand Theatre at Islington, at which an alarm of fire was raised. With the wife and two children he was in a box when a flash of fire ran along the flies, and the fireproof curtain was lowered. He immediately realised the possible consequence, not only of fire but of panic, and he was conscious of feeling terrible anxiety. But he was surprised to feel also, at intervals of a second or two, a sharp and sudden pain in the small of the back three times repeated, as if he had been grasped and squeezed tightly in a gigantic hand, and when he wrote, fifteen hours later, the seat of these pains was still sore. The bodily accompaniments, or as some psychologists will have it, components, of emotion are as various as their rationale is puzzling. No doubt the usual bodily signs of fear are the same now as, says the correspondent of the *Times*, they were in the days of Homer; he might have gone farther back. They are the same as those described by the Temanite, when fear came upon him and trembling, which made all his bones to shake, and the hair of his flesh stood up. But the signs of every emotion vary much in different individuals. In pregnant woman, a sign of fear is contraction of the uterus, which sometimes leads to abortion. In a case with which we are acquainted, a sign of anger is a painful spasm of the back of the neck. Even annoyance, which is commonly expressed by some interjectional stock utterance, may exhibit itself, *teste* Shylock, by incontinence of urine. In Private Mulvany the rage of battle was signalised by vomiting; but in this case there is an element of doubt. Mulvany was not in a Highland regiment, but there may have been bagpipes in the brigade.—*Brit. Med. Journ.*, Jan. 5. 1901.

Is It Permissible for Diabetics to use Sugar ?

In a recent clinical lecture, Professor Lepine, of Lyons has related the case of a man, aged 60, who has suffered from moderate diabetes for twenty years, the average daily quantity of urine being about 60 ounces, containing about 1,800 grs. of sugar. Last winter, after an attack of influenzal bronchitis, he became worse, lost a good deal of weight, and grew so feeble that he could hardly walk about his room. Regarding his case as hopeless, he allowed himself the indulgence of putting sugar in his wine, tea, and coffee, and to his surprise he found that small doses of sugar amounting to 600 or 700 grs. had no ill effect, but that his strength began to increase. At this stage he

was seen by Professor Lepine, who found him evidently improving, and permitted him to continue to use these small quantities of sugar. Professor Lepine in his commentary recalls the fact that forty years ago, as may be seen by referring to the numbers of the *British Medical Journal* at that period, the treatment of diabetes by sugar was strongly advocated by Budd, Corfe, Solane, and others upon purely empirical grounds. The cases given in support of this practice are, in the opinion of Professor Lepine, wanting in those details which are indispensable to enable us to judge of their value, but he points out that there is nothing irrational in supposing that small quantities of sugar may be taken by diabetic patients without injury and even with advantage. Cane sugar is made up of equal quantities of glucose and lævulose, and of late years it has been shown that lævulose can be tolerated by many diabetics in doses of from an ounce to an ounce and a-half daily. Much also depends upon the rate at which the sugar is absorbed and the quantity taken at one time. Professor Lepine suggests that small quantities of honey, which consists almost exclusively of lævulose, may be tolerated even better than cane sugar, and he urges that it is not irrational to make carefully-guarded experiments with limited quantities of saccharine substances in the treatment of diabetes, for diabetic patients vary considerably in their tolerance of carbohydrate food, and this can only be determined by observation in each case.—*Brit. Med. Journ.*, Jan. 5, 1901.

Menstrual Condition of the Average Girl in Average Health.

George L. Engelmann, of Boston (*Med. Record*, December 1st) has collected facts on this point from the records of 4,873 cases from high and normal schools, colleges, and department stores. The girls were between 15 and 26 years old, the majority between 18 and 22, in rather better than average health—in good health, and in numbers sufficient to admit of positive deductions as to what may be termed normal or average menstruation. In brief, the menstrual period proper was intensified by the increase of all vital energies, followed by a depression which appeared with the coming of the flow. Under ideal conditions and in perfect health the physiological status was such that this epoch, preceded by a day or two of heightened activity was marked by a moderate lassitude, mental and physical, the flow persisting for from four to five days, and recurring at regular intervals of about twenty-eight days. It was a period of heightened susceptibility that quickly recorded any variation from the normal excitement or exertion, or fatigue, mental or physical, were promptly

reflected by variation in the function, and in our everyday life such disturbing elements constantly occurred, so that conditions actually existing varied greatly from this ideal. The average period of the average girl in average health presented very different features. Regularity in 50 per cent. of the cases only; recurrence every 28 days in 30 per cent., varying most frequently from 26 to 42 days, 45 per cent. being over 28. The duration varied from 2 to 7 days, average 4 to 6. From 66 to 70 per cent. suffered more or less, the number of sufferers varying, according to age and nature of occupation, between 30 and 90 per cent. Lessened ability for exertion, mental or physical, was admitted by 60 per cent. Some few were habitually incapacitated from work, and 30 per cent. occasionally. The function of the girl in good health, under modern conditions of life, was by no means an ideal one in Engelmann's judgment; and, in fact, the functional health of the American girl—the coming mother of American men—was far from what it should be by right of inheritance and surroundings. This fact practitioners must recognise, and upon them and educators devolved the duty of study and correction of the evil.—*Brit. Med. Journ.*, Dec. 22, 1900.

Precocious Obesity.

It is sometimes supposed that a considerable degree of fatness in a child is a sign of health, but according to Dhauffard (*Journ. de Méd.*, March 10th, 1900) it is a sign of degeneration, and unless treated may end fatally. The writer had under his care a man, aged 34, of middle height, and of very excessive obesity. From early childhood this had been the case, and it was discovered that there were several instances in his family of hereditary obesity. Examination showed considerable cardiac embarrassment and dyspnoea. He was put on milk diet alone, together with some doses of thyroid extract, and under this treatment he lost a good deal of weight in three weeks. He returned home and resumed his ordinary diet, on which he regained a kilogramme per diem. It was found that his heart was failing, and had ceased to react to digitalis and other tonics. The patient died of asystole. It is difficult to state exactly the pathogenesis of congenital obesity. In some, apparently, there is too rapid an assimilation of nutritive material, while in others combustion is not sufficiently rapid. It has also been supposed that there is some peculiar lipogenic ferment, but the evidence of this is not sufficient. In constitutional cases treatment is very much more difficult, especially in view of the fact that they are not infrequently gouty, diabetic, or the subjects of renal disease. A great deal also

depends on the state of function of the heart and kidney, which are indeed the indications of most importance. Not infrequently there is tachycardia or arrhythmia. On *post-mortem* examination the muscular structure of the heart is generally found to be considerably affected. A point which has, so far, not been sufficiently studied is the thyroid gland. In the cases quoted by the author, this organ was double the normal size, and its structure profoundly altered, there being a condition which could best be described as a hypertrophic cirrhosis. In such cases the main line of treatment is, first, to impress on the patient the absolute importance of reducing his weight otherwise the heart may be suddenly hampered and give way. Next to put him on a very limited diet, chiefly milk, and to order a carefully graduated scale of exercises. It is important that it should be judiciously increased, and it may be combined with massage. The administration of thyroid extract is undoubtedly of use according to the writer, but its action must be carefully watched. It is contra-indicated in cases where there is severe cardiac embarrassment. When given it should be taken for a week at a time, followed by the administration of Carlsbad salts. If taken too frequently the result may be cardiac failure.—*Brit. Med. Journ.*, Dec. 22, 1900.

Atrophy of the Muscles of the Shoulder as an Early Sign of Phthisis.

At the meeting of the Société Médicale des Hôpitaux of Paris on Oct. 26th M. Emile Boix called attention to an early sign of phthisis which has not received much attention—atrophy of the scapulo-thoracic muscles on the affected side. In advanced cases, of course, such atrophy is well recognised. M. Boix relies on inspection and palpation rather than on measurement to detect slight differences between the two sides. Inspection of the shoulders both from the front and the back must be carefully carried out in a good light. If necessary it may also be performed with the patient lying down, both on his abdomen and on his back; or better still, the patient may be seated. Palpation will corroborate the evidence derived from inspection. With the tips of the fingers the thickness, consistency and elasticity of the muscles are appreciated and at the same time the habitual tenderness—a sign of the first importance—is discovered. The difference between the two sides can also be appreciated by pinching between the fingers the fleshy mass above the clavicle and spine of the scapula. M. Boix finds that in phthisis muscular atrophy is more marked on the side in which the lesions are more advanced and is unilateral if the lesions are unilateral. Even when the subject

is very emaciated a difference between the two sides will be found in the volume and consistency of the supra-spinatus, trapezius, and pectoral muscles, and sometimes of the deltoids. Muscular atrophy is an early sign, but is not a primary sign, of phthisis. Its value consists in that it draws attention to the affected apex and confirms the diagnosis at a time when only modified respiratory sounds without adventitious sounds are present and the disease can only be suspected. The atrophy in advanced cases affects more or less generally the muscles of the shoulder; in the beginning, on the contrary, it is partial. Sometimes the supra-clavicular hollow is more pronounced on the affected side, sometimes the supra-spinous mass is less full than on the other side. A source of fallacy is that the muscles of the left shoulder are generally less developed than are those of the right; but a perceptible difference, especially in the form, of the "partial" atrophy described above, constitutes a presumption in favour of phthisis. The fact that the right side is generally first affected or most affected in phthisis increases the value of the symptom of muscular atrophy. As to the pathology of this condition it seems to be analogous to muscular atrophy of arthritic origin. The following cases are examples of its value as a symptom. Case 1.—A man, aged 38 years, complained of cough and loss of flesh. At the left apex there was slight dulness, inspiration was jerky, and expiration was prolonged. In spite of the general emaciation palpation revealed a marked difference between the two supra-spinatus muscles; the left was much more atrophied than the right. The tuberculosis made rapid progress and ended fatally. Case 2.—A woman, aged 44 years, came under observation. A year previously she had had abundant hæmoptysis. At the right apex respiration was scarcely prolonged, and at one point in the supra-spinous fossa fine sub-crepitant râles were heard. On the left side the supra-spinatus muscle was in well-marked relief; on the right the supra-spinous fossa was flattened. The sub-clavicular and supra-clavicular fossæ were more marked on the right side than on the left. A year later there were signs of extension of the pulmonary disease, but the appearance of the muscles remained the same.—*Lancet*, Dec. 15, 1900.

The Growth of Population and the Density of Town Populations.

A paper read by Mr. T. A. Welton before the Royal Statistical Society gives a graphic survey of the growth and distribution of the English population since the first census taken in 1801. At the same time it furnishes a useful prelude to the eleventh decennial

census which will be taken in March next. It is well to be reminded that in 1801 no town outside London numbered 100,000 inhabitants, Manchester coming nearest with 91,432, while London itself contained only 922,000 inhabitants. At the time of the first census 66 per cent. of the people lived in towns of 1,000 inhabitants and upwards, but in 1891, 64 per cent. of the people lived in towns exceeding 4,000 in population. The ordinary density of population in rural districts was, in 1801, about 100 persons per square mile; in 1891 it averaged 130 persons; in the former year rural interests were predominant, while in 1891 they were those of less than one-fifth of the whole people. Not only has there been a diminution in the proportionate numbers living in rural districts; but since 1851, following a severe check to their increase in 1841-51, there has been an actual decline in rural population. This contrasts strikingly with a specially great increase of rural population in 1811-21, the period marked by the cessation of the Continental war. We cannot follow in detail Mr. Welton's elaborate statistics as to the distribution of increased and decreased populations. It is clear, however, that the five divisions of London, Lancashire, the West Riding of Yorkshire, Staffordshire, and Durham are now "pre-eminent for the existence within their limits of dense and progressive populations. The important division of Gloucester, Devon, etc., has sunk from the fifth to the seventh place, whilst Wales and Cumberland, as well as Durham, show a marked advance. The Norfolk division is now at the bottom of the list." Mr. Welton has made an elaborate attempt to classify districts in accordance with their density of population; and the assumptions which he has found it necessary to make illustrate the almost insuperable difficulties of this task. He points out that the area and density attributed to towns are not to be taken as strictly correct. This is obviously true. Thus, one municipality includes within its borders a large area of partially occupied suburban land or even of almost completely unoccupied rural land; while the boundaries of another do not extend beyond the strictly urban houses. Furthermore, the official densities of various towns vary from year to year irrespective of the growth of their populations. Thus, Manchester and Liverpool have in recent years widely extended their boundaries, and the density of their populations on acreage is apparently, though not truly, less than that of other towns whose boundaries have remained fixed. The true test of density of population is, as pointed out in a paper read before the Royal Statistical Society in 1891, "the number of persons to each room, not the number of persons on given acre." We sincerely hope that the instructions to householders and enumerators

at the forthcoming census will be so drafted that the information under this head will be more accurately furnished than was the case at the last census. If this be secured, a body of statistics will be available which will throw great light on the problems of housing, and not improbably lead to great and beneficent reforms.—*Brit. Med. Journ.*, Dec. 22, 1900.

CLINICAL RECORD.

Foreign.

THE LOCAL USE OF ARSENIC IN MALIGNANT ULCERATION.

By GEORGE L. VAN DEURSEN, M.D., LOWELL, MASS.

CASE I.—W. T.; expressman. When first seen was suffering from an epithelioma of the right side of the lower lip. It was a typical "smoker's cancer," having undoubtedly been caused by the irritation of the heated clay pipe held constantly in the one position. He came under observation the first week in January, 1894. At that time the growth involved nearly one-half of the lower lip, the ulceration exposing an area as large as a quarter of a dollar, and surrounding induration caused a thickening of the lip to at least $\frac{1}{4}$ th of an inch. The sanious discharge had been weeping down over the chin, setting up a severe irritation and threatening a general spreading of the condition. The ulcerating surface was at once cleansed with peroxyde of hydrogen, followed by a thorough application of carbolyzed linseed oil and a free dusting with Arsenic 2x trit. As the ulceration extended over onto the inside of the lip, pieces of cotton saturated with peroxyde were placed between the lip and teeth to prevent irritation from the teeth and to keep the surfaces as clean as possible. These were renewed several times a day as required.

Internally he was given tablets of Arsenic 3x t. i. d., and was furnished with a vial of the carbolyzed oil and another of the 2x trit., with instructions for its local use at home. He reported at the end of a week, at which time the growth showed noticeable improvement. It was again cleaned carefully with peroxyde of hydrogen and the oil and arsenic applied as before.

He was seen twice after this, at periods of two weeks; improvement was marked at each time and he was discharged, cured, the latter part of February, having been under treatment, practically, two months. He was given another vial of the tablets and continued taking one every day for about a month. The growth was

entirely removed, all induration absorbed and the reddened scar tissue soon faded to normal color. He has been seen frequently in the six and one-half years since then and there has never been any indication of recurrence.

CASE II.—L. M.; weaver; native of Quebec; age 47. About twelve years ago noticed a small growth on right side of nose—about size of a pea. It grew very little till he began treatment. About six years ago it was removed by actual cautery, but returned in about four weeks and was soon twice the size of the first growth. A year later he had it cut out, followed by recurrence in four or five weeks larger than before. Two years before I saw him he had it removed by a plaster. The treatment was very painful but it healed perfectly and gave no trouble for about six months, when it began to grow at upper margin of the old cicatrix. It grew slowly for about a year then began to ulcerate; scabs would form and remain for two or three days, then loosen, and from beneath it would come a thin muco-purulent discharge. When he came to me for treatment, August 28, 1899, there was an open ulcer nearly the size of a ten cent piece, covered by a scab which on removal showed an excavation that would have taken a large marrow-fat pea. The edges of the ulcer were hard and raised. After cleansing the cavity and surface with peroxyde, the carbolized oil and arsenic 2x trit. were applied and 8x tablets given, as in the previous case. Dressing was done twice a week at first, later four times a week. By the last of September the growth was sloughed out except at the upper border and the excavation was filling rapidly with healthy granulations. It was now dressed only twice a week, applying the arsenic only to the point where the growth seemed to persist and dressing the remainder of the wound with calendulated boracic acid powder. Improvement was steady and the patient was discharged November 24, 1899, cured. There has been no recurrence up to the present time and the patient was seen within the past week, looking well.

CASE III.—Mrs. H. R. American. Age 42. History.—On father's side, negative. Mother's sister died of consumption. Another sister died from cancer of breast. Patient always delicate, had usual diseases of childhood and was always troubled with neuralgia. Was married at 18, had no children and has not lived with husband for 21 years; during this time general health has been good. Four years ago had trouble with heart, palpitation, shortness of breath and a persistent hoarseness. She was under treatment for these troubles by several of the best physicians of our city with partial relief. In December, 1898, first noticed a small lump in upper lip near left

nostril, which seemed to be between the skin and the inside of the lip. This gradually enlarged, and in course of two or three months extended to the right nostril and ulceration began. She used iodoform, carbolic salve and other "home remedies," under the advice of friends. During this time she was under the care of one of our best surgeons (not of our school, however), who tried to console her by telling her "not to be frightened till he was," while he prescribed some simple healing lotion.

August 17, 1899, she came to my office for treatment. At that time the entire upper lip was involved. It was thickened to about three times its normal proportions, the color was dark and livid, and ulcerative patches covered the greater part of the surface, extending into the mucous membrane at the lower border and above, involving both nostrils for a distance of three quarters of an inch or more. To the left of the nose it spread upward onto the cheek, and nodules could be found just below the internal canthus. She complained of a great deal of burning and some stinging pains.

Treatment was begun at once, employing the same method as in the other cases. It was dressed twice a week, usually, sometimes three times, and the 3x tablets of Arsenic were given internally. Improvement was noticeable after a few dressings and continued rapidly over the lower portion of the growth, but for some time there was a tendency to spreading at the upper border, causing some anxiety as to the possible effect on the eye should extension in that direction continue. This was finally checked, however, before any serious results occurred.

This treatment was continued till near the last of December, 1899, at which time the ulceration was entirely healed, the induration and thickening almost gone, and her general condition much improved. The purplish livid colour had changed to a brighter hue, more like normal scar tissue; she was given some of the carbolized oil for local use at home, and the internal administration of the arsenic was continued. About the middle of January a small nodule made its appearance a little way inside the left nostril, but one application of the Arsenic 2x, followed by the application of the oil for a few days, caused its rapid disappearance. The patient has reported about once a month since she was discharged, and up to the present time it seems to be a complete cure. The lip has regained its normal color, and it is only on close inspection that some small lines of cicatricial tissue can be seen. She says that she is feeling better than for years and works regularly at her old place in one of our large mills.—*Hahnemannian Monthly*, December, 1900.

A CASE OF FISSURE OF THE ANUS CURED BY
RATANHIA.

Translated from the *Homœopathische Monatblätter* by

DR. W. A. DEWEY.

A gentleman suffered from violent pain in the anus, which had troubled him for months. In spite of the discomfort he followed his occupation until the pain became so severe that he could no longer walk. After each passage the pains appeared, being of a burning nature, associated with tenesmus and lasting several hours. The bowels were inclined to constipation and bleeding accompanied the stool. He had been treated for hemorrhoids and intestinal catarrh for several weeks. Examination showed a fissure of considerable length and depth, looking more like a deep wound than a fissure, which easily explained the violence of the pain. As there were present the precise symptoms of ratanhia, namely, tenesmus and burning in the anus lasting for hours after stool, it was prescribed in the second dilution, without any external application whatever. The patient returned after sixteen days and made the statement that he was much better, that from the first taking of the remedy the pain and pressure became better, and after three days the passages were much easier. The expression of suffering that the patient had from so long a siege of pain, had visibly decreased. Examination showed that the wound was fully healed. This case is interesting from the fact that no external applications were used, no surgical measures, not even laxatives given to make the stool soft so as not to tear the fissure on its passage. It shows that the homœopathic remedy has no need of adjuvants of any description.—*The Clinique*, Dec., 1900.

Gleanings from Contemporary Literature.

ON RECENT RESEARCHES WITH REGARD TO THE PARASITOLOGY OF MALARIA.

*Being a portion of the Address delivered at the Anniversary Meeting of the
Royal Society.*

BY THE RIGHT HON. THE LORD LISTER,
Retiring President of the Society.

Through the Malaria Committee the Society has kept in touch with the progress that has been made in unravelling the mystery of the greatest scourge of our tropical colonies, and with the steps that advancing knowledge has suggested for its suppression. The subject has now reached a stage at which it may be not unfitting to refer briefly to what has been accomplished.

The term "malaria" implied the belief that some vitiated state of the atmosphere was the cause of the disease. But the knowledge gained of late years of the parasitic nature of infective disorders pointed clearly to such an origin of the intermittent fevers, as the various manifestations of malaria have been termed. Accordingly diligent and long-continued search was made in the water and the soil of malarious districts in Italy for the suspected living agent, but without success.

LAVÉLAN'S DISCOVERY.

The discovery was made in 1880 by Laveran, a French army surgeon stationed in Algiers, who observed in the red blood corpuscles of malarious patients what he regarded as adventitious living organisms; not of vegetable nature like the bacteria which constitute the *materies morbi* of so many infective diseases, but a very low form of animal life. In what he believed to be the youngest condition of the organisms, they appeared in the red blood discs as tiny specks of colourless protoplasm, possessing amoeboid movements. Those growing at the expense of the red corpuscles which they inhabited consumed them more or less completely, at the same time depositing in their own substance a peculiar form of dark brown or black pigment, such as had long been known to form characteristic deposits in the organs of malarious subjects. As they grew they assumed various forms, among which was what Laveran termed the "rosace," a rounded body bearing at its circumference little spherules, while the pigment was accumulated at the centre.

This discovery of Laveran's, at first regarded with the gravest suspicion by pathologists, was the first great step in the etiology of malaria. It supplied the means of distinguishing the disease from its counterfeits, and it explained the wonderful specific efficacy of quinine, till then given only empirically. Quinine is remarkable in the circumstance that it acts with deadly effect upon some microbes, in dilutions which are quite un irritating to the human tissues. It can thus be given in sufficient doses to kill the malaria parasite in the blood without injuring the patient.

GOLGI'S OBSERVATIONS.

Nine years after Laveran's discovery, Golgi, of Pavia, who had been specially studying the "rosace" form of the parasite, and had become convinced that the spherules at the circumference of the rosace were sporules of the microbe, announced that he had observed differences between the rosaces of the tertian and quartan forms of the fever, so great and so constant as to make him satisfied that they were two distinct species of organism. At the same time he had made the extremely important observation that the periods of occurrence of the fever corresponded with the times of maturation of the rosaces. These all coming to

maturity about the same time shed their sporules into the blood, and this determined the febrile attack. The free sporules then, according to his view, attached themselves severally to other red discs, constituting Laveran's tiny amoeba, and grew in the red corpuscles without causing symptoms till they had produced a fresh crop of sporules ripe for extrusion the time for this being two days in the tertian and three days in the quartan form. Thus the periodicity of the intermittent fevers and their variety in that respect were alike explained.

THE ÆSTIVO-AUTUMNAL PARASITE.

A few months later a third species of the parasite was recognised, having the peculiarity that some of its individuals, instead of being of rounded form, were of crescentic shape. This species received the title "æstivo autumnal," on account of the season in which it showed itself in Italy. It was not so regular in its periods as the others, and was much more dangerous. The existence of these different species was at first very generally doubted, but it is now universally accepted, and is of very great importance. The examination of a drop of blood from the finger of the patient enables the physicians to decide not only whether the disease is malaria, but which of the three types it will follow. The more dangerous crescent form is commonest in the tropics, and hence has been termed by Koch "tropical malaria." The quartan has proved the mildest of the three.

The process of sporulation might seem at first sight to explain the whole life-history of the parasites. For their propagation within the human body that process does indeed make ample provision. But the mystery remained—How did they gain entrance into the human system? Though present in abundance in the blood of the malarial patient, they are absent from the excreta. Spontaneous generation having been long since exploded, what could be their mode of origin in the external world? This problem has of late been completely solved.

MANSON'S DEDUCTIONS.

Among the forms of the parasite observed by Laveran was one which he termed "flagellated," possessing filamentous appendages which exhibited extremely active movements, by virtue of which they were often seen to break off from the parent microbe and swim away. These flagella were regarded by many biologists as products of degeneration resulting from the abnormal influences to which the parasites were exposed in blood outside the body. This Laveran could not believe. Indeed it was the remarkable activity of the flagella that finally satisfied his own mind that what he had discovered were really living parasites; he regarded the flagella as the highest form of development of the microbe. There was another observer who felt equally convinced that the flagella were living elements—our Fellow Dr. Manson. He, however, went a step further. Seeing that the flagella were never met with in blood when first drawn, but only made their appearance after some little time had elapsed, he conceived that their function must be that of spores for spreading the parasite in the external world, and some suctorial insect seemed to him the probable agency for their diffusion. He had observed several years ago that another parasite of the human blood, a microscopic nematode worm, filaria, is drawn with the blood into the stomach of a kind of mosquito; and finds in the insect a secondary host, in the tissues of which it passes through a new cycle of development. He became deeply impressed with the idea that a similar series of events might occur with malaria, and he expounded his views fully before the Royal College of Physicians of London. The notion that mosquitos might be in some way associated with malaria had occurred to Laveran and to others, but by no one had it been brought home with such logical force as by Manson.

ROSS'S OBSERVATIONS.

Major Ronald Ross, of the Indian Medical Service, on a visit to this country became deeply impressed by Manson's arguments, and determined to test his theory on returning to India. Using mosquitos bred in bottles from the larva, he caused them to bite persons affected with the crescent form of malaria, and afterwards sought in the bodies of the insects for evidence of the development of the parasite within them. For two long years he pursued this search, making about a thousand observations, but to no purpose. So far he had employed two kinds of mosquito common in the district where he was stationed; but in August, 1897, having been supplied with some larvæ of a species rare in that locality, and having bred the fully developed insects from them, he induced eight of them to bite a patient with crescents in his blood, and examined their tissues at successive periods. Four of them were killed at once for the investigation of the flagellated bodies. Of the remainder, one examined four days after biting showed under a high magnifying power several rounded bodies embedded in the wall of the stomach, differing from any natural structure of the insect and containing granules of pigment "identical in appearance to that of the parasite of malaria." The eighth mosquito was killed one day later, and exhibited bodies precisely similar except that they were distinctly larger and more substantial, implying that they had grown in the interval. Thinking that in all probability he had at length found that which he had been so long in search of, and feeling uncertain when he might again obtain the rare species for confirmatory investigation, he at once sent a description of his observations to London, accompanied by his preparations and an independent report upon them by a colleague. Dr. Manson, to whom among others they were submitted, was so much struck with the preparations that he had a drawing made of the pigmented bodies in them for publication along with Ross's paper. Though, like Ross, expressing himself with caution, he inclined to his interpretation of the appearances. The paper contained a minute description of the rare mosquito, which seemed to Ross to belong to a "family distinct from the ordinary" kinds.

In the following month he made a similar experiment with another species of mosquito which appeared closely allied to the subject of his last observations. He succeeded, though with some difficulty, in getting two of them to bite a patient with crescents. One of these insects, killed next day, was examined with a negative result; but in the second, killed forty-eight hours after biting, the peculiar pigmented bodies were again seen among the tissues of the stomach. Meanwhile "some scores" of the same species "unfed or fed on healthy blood, had been examined without finding the cells."

In the same month he observed precisely similarly pigmented bodies in a common mosquito which he had seen feeding on a patient affected with the parasite of mild tertian fever. Here he had not the rigorous evidence supplied by insects bred from the larva; and it was quite a new thing to find the pigmented bodies in ordinary mosquitos. But all the patients on whom his previous observations on the common species had been made had been affected with crescents; and the parasite concerned being in this case a new species, it did not seem unlikely that it might be harboured by the common insects. These new facts removed all doubt from his mind; and he felt that he had the subject in his grasp, and wrote to that effect to Manson. But to his bitter disappointment he was at this time despatched to another part of India to study another disease and thus several precious months were lost.

In February, 1898, however, he was told off for the special investigation of malaria, and a laboratory in Calcutta was set apart for his use. Few

cases of human malaria being available at that season of the year, he turned his attention to some closely-allied forms of disease common in birds. He soon found that one of the ordinary kinds of mosquito, which had invariably given negative results when fed on patients with crescents developed pigmented bodies among the tissues of the stomach, if fed on birds—such as sparrows—containing in their blood the form of bird parasite known as *proteosoma*. The birds presented a ready field for experiment; and the kind of mosquito—the grey mosquito, as he termed it—was very abundant in Calcutta: so that it was easy for him to hatch from the larva any number that he might require. Discoveries now followed each other in quick succession. He soon announced that the pigmented bodies grew rapidly from day to day, till after about a week they assumed large proportions, projecting like buttons from the outer surface of the stomach, and often showing a curious appearance of radiating striæ. Next we learned that the striæ had been indications of spore formation, and that when the bodies had attained maturity they burst into the general body cavity, discharging enormous numbers of minute elongated organisms which he termed “germinal rods.” Then followed the remarkable observation that the germinal rods soon leave the general body cavity and accumulate in the cells of the salivary or poison glands, and in the duct leading from them to the proboscis with which the bites of the insect are inflicted; and, lastly he completed the cycle of evidence by ascertaining that healthy sparrows could be infected with the *proteosoma* by causing mosquitos to bite them at the appropriate period after biting an infected bird.

Thus was in truth established the mosquito theory of malaria; for taking into account the close resemblance of the *proteosoma* to the human malarial parasites, together with the facts ascertained by Ross regarding the infection of the rare mosquitos with human crescents, we could not doubt that the course of events which he had traced in the sparrow occurred also in man. And the two sets of observations taken together clearly established the fact that, as Manson had predicted, different species of malarial parasite may require different kinds of mosquito as their alternative hosts.

At the same time the presence or absence of pigmented bodies in the stomach wall afforded a sure means of distinguishing those kinds of mosquitos which convey malaria to man from those which are incapable of doing so. And it may be added that the multitude of negative results after feeding grey mosquitos with crescent blood, considering the great prevalence in Indian birds of the parasite with which that species of insect is liable to be infected, afforded pretty conclusive evidence that the mosquito never derives the germs of malaria from the larva, and can acquire them only by biting some infected animal.

MACCALLUM'S OBSERVATIONS.

But although the mosquito theory was thus demonstrated, there remained a link wanting in the chain of biological sequence. The flagella which Manson regarded as spores were destitute of malarial pigment, whereas the smallest corpuscles seen by Ross in the stomach wall invariably possessed it. How was this inconsistency to be explained? What was the relation of the unpigmented flagellum to the pigmented corpuscle? The answer had been already independently supplied.

I was present at a sitting of the Zoological Section of the British Association at the Toronto meeting in 1897 when Dr. MacCallum, a young pathologist of the Johns Hopkins University at Baltimore, read a paper describing the results of an investigation in which he had long been engaged into another form of malaria parasite, *halteridium*, especially common in crows. He told us—and he illustrated his statements with

preparations under the microscope—that he had distinguished differences which he regarded as fundamental, between the spherical bodies seen in the shed blood of a bird affected with that parasite. Though alike in size some had a more granular protoplasm than the others, which had a more hyaline aspect; and he had observed that the more hyaline ones alone emitted flagella. These, after wriggling themselves free from the parent cell, swam away till they approached some corpuscle of the other, more granular, sort; when the first that reached it plunged into its substance and disappeared, while all others were by some amazing provision resolutely refused entrance. Here, then, was witnessed in an exceedingly low form of animal life a process of fertilisation identical with that which occurs in an echinus or a fucus. The flagella were neither more nor less than spermatozoa, and the more granular cells were ova. As the result of the fertilization the female cell was seen by MacCallum to alter its shape in the shed blood and assume an elongated form to which the term *vermiculus* was applied. This new creature was possessed of wonderful powers of locomotion, sometimes in its powerful career piercing through the substance of a red corpuscle. Nothing could well be imagined better adapted for penetrating the layer of cells that line the stomach of the mosquito; and as the *vermiculus* retained its pigment, Ross's pigmented bodies were naturally accounted for.

These observations of MacCallum's might seem at first almost too wonderful for credence; but they have been fully confirmed by others.

It appears to be doubtful whether *halteridium* ever produces the "rosace" form with its attendant sporulation, but there is no doubt that the process of fertilization seen in that parasite occurs in human malaria. MacCallum himself observed the act of conjugation in the crescentic human form, though he did not see the subsequent development of the *vermiculus*.

OBSERVATIONS OF KOCH AND GRASSI.

Koch made a further step by observing the *vermiculus* of *proteosoma* in blood from the mosquito's stomach. And, finally, our medallist, Grassi, who in other ways has made most important contributions to this subject, has in a recent work, accompanied by very beautiful illustrations, not only described the presence of *vermiculi* in abundance in the blood in the stomach of mosquitos during the first two days after biting patients affected with malaria, but he has traced and figured the pigmented bodies of the smallest size in the tissues of the stomach in the immediately succeeding period, these bodies retaining in some instances the elongated form of the *vermiculus* after passing through the layer of epithelium that lines the cavity of the organ.

SPORULATION AND SEXUAL REPRODUCTION.

It has thus been abundantly established that the parasites of malaria are present in the patient's blood in two distinct forms, one sporulating asexually in the human system and causing the attacks of fever, the other undergoing sexual development in the body of the mosquito. That both forms are developed from the spores introduced by the mosquito is certain. At what stage they begin to develop their respective peculiarities is not yet quite made out. The crescent form is peculiarly favourable for this inquiry, as it is the crescents only which discharge the sexual function, and they are easily distinguished from the sporulating form, not only by their shape but also by their much larger size.

The development of the crescents has been specially studied by the Italian pathologists Bastianelli and Biguami, who have been able to distinguish the young crescents while still of extremely small dimensions; and they have made the remarkable observation that, while the crescents are as a rule only found in the blood of the finger when they have arrived at maturity, the young forms are to be seen in internal organs such as the spleen, but above all in the bone marrow, where alone, according to these observers, the youngest recognisable crescents are to be found.

Seeing that, in whatever part of the body they are, the parasites always inhabit the blood, it seems difficult to conceive what can be the cause of their preference, at different stages of their growth, for the blood vessels of different regions and organs. But of this we find parallels in several other cases of blood parasites; the most striking perhaps being the astonishing fact, that of two species of *filaria* that infest the human blood one only shows itself in superficial parts at night, and is therefore termed "*filaria nocturna*," while the other has the name "*filaria diurna*," because it only appears by day in the finger blood, and retreats into deep parts for the night.

"ANOPHELES" AND "CULEX."

Ross was not an entomologist, and he was unable to learn in India the names of the species of mosquito with which he had been working, till Daniels, one of the explorers sent out by the Malaria Committee, having gone to Calcutta to confirm or otherwise Ross's work, informed him that his rare kinds, which acted as hosts for the human crescents, belonged to the genus *Anopheles*, and that the common sort, which performed the same office for proteosoma, belonged to another genus, *Culex*. It has been a matter of great interest to ascertain whether all mosquitos which act as conveyers of malaria to man are of the genus *Anopheles*, and the exceedingly common and numerous species of *Culex* guiltless in that respect. Very numerous investigations into this question, and especially those conducted by Grassi and his coadjutors, seem to have proved that such is the case, and that, so far as human malaria is concerned, *Anopheles* alone have to be considered.

Our other two explorers, Messrs. Christophers and Stephens, have made various important contributions to our knowledge of malaria. Thus, having paid special attention to the very dangerous disease which on account of one of its symptoms is termed blackwater fever, they have come distinctly to the conclusion that it is not a special disorder but a form of tropical malaria. If this is the case, it is of immense practical importance for it will follow that any means efficacious for the prevention of ordinary malaria will prove equally so for the deadly blackwater fever.

THE INFECTION IN YOUNG CHILDREN.

Another most important fact which they have ascertained, and which was independently observed by Koch is that in a native population in a malarious region, while the adults may be perfectly free from the disease an enormously large percentage of the young children contain the parasites in their blood. Though the disease appears to be much less dangerous to the native children than to new arrivals, implying that they have a degree of congenital immunity, the parasites in the young natives are perfectly efficacious for causing dangerous fever in white people, when conveyed to them by mosquitos. Hence the important practical inference that white people settling in a malarious tropical region should not, as they now commonly do, plant their houses near native settlements, but place them at some considerable distance from them, about a quarter of a mile being apparently sufficient. And Christophers and Stephens in their last communication have gone so far as to express the opinion that the following of this simple rule would go very far indeed towards rendering the malarious tropics healthy to Europeans.

In a communication to this Society it is the scientific side rather than the practical that is naturally chiefly dwelt on. Yet I should have been glad had time permitted, to have referred to the various measures of prevention and treatment of malaria which the light of recent knowledge has already suggested, and which have already borne important fruit. I must now content myself with saying that, very various as these measures are, they are all, without exception, based on the mosquito theory.—*Brit. Med. Journ.*, Dec. 8, 1900.

ON SOME DISAPPOINTMENTS OF SURGERY.

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The art of surgery has improved so rapidly during the last quarter of a century that we are perhaps a little too much inclined to consider a surgical operation as the simplest and most certain method of curing a patient. In many cases the operation actually cures; in other cases it relieves the particular condition for which it was undertaken; whilst in others, again, the result by no means fulfils the expectations of the surgeon or even of the patient. These surgical disappointments are quite distinct from surgical calamities, the number of which can be lessened by care, though no foresight can wholly abolish them from the practice of the most competent operator. I mean death during trivial operations, serious hæmorrhage, unavoidable injuries to vital structures, and the physiological peculiarities of individual patients which embarrass the surgeon to the detriment of the patient. With such calamities I have nothing to do at the present time. They occur with greater or less frequency in the practice of every surgeon and are necessarily independent of the care which he bestows upon his art. They have been treated most ably by Sir James Paget in an essay on the "Calamities of Surgery" published in his volume of clinical lectures. I am concerned rather to-day with the minor unsatisfactory results of operations—the true surgical disappointments, not the surgical mishaps—disappointments which are due to two main causes. Either the surgeon did protest too much, in which case his patient is disappointed; or else he carried to extreme the wholly admirable teaching of Hippocrates, *Μὴ βλαπτεῖν*, *Non nocere*—Not to do harm. It is the surgeon who is then disappointed that his timidity prevented him from reaping the full benefit of the operation. Every surgeon sings the praises of his art and the benefits to be derived from operation, but such songs of hope and success should be sung in the early days of spring and in the long warm evenings of summer. The winter afternoon of a December day in London is, I venture to think, no unfitting occasion to consider some surgical disappointments, for by knowing the cause we may sometimes avoid the disappointment. I propose to illustrate my remarks by cases which have come under my own observation, though I have very little doubt that many of my hearers will supply parallel instances, and we may thus obtain texts for a very profitable discussion.

Beginning, as we should do, with the early days of life, there are few operations more often performed than those of circumcision and for hare-lip, yet there are few which may give more disappointing results. The aim of a perfect circumcision is to remove just so much of the foreskin as is necessary to liberate the glans penis and to avoid removing so much as to leave the patient a "*curtus Judæus*." Such a perfect operation is rare, but I do not recollect that the difficulties were ever pointed out to me. The disappointment which I have most often felt is that the cut surface of the prepuce has contracted adhesions to the glans—an accident which is especially likely to happen when the penis is ill-developed. If the mother is careless and the child is not seen for some days after the operation the adhesions may become so dense that it is impossible to break them down and the child is then in a worse condition than he was at birth. I was somewhat troubled at first by the occurrence of this accident, but now I make it a practice to see the patient at short intervals, and if there is any tendency to retraction of the glans I adopt the ritual plan of pulling back the foreskin until the corona is exposed and keeping it thus retracted by

passing the penis through a slit in the gauze dressing. The contraction of the penis by the prepuce sometimes causes a little swelling of the penis, but I have never seen any ill-results follow. In the operation for hare-lip the bugbear of the surgeon used to be the formation of a notch at the bottom of the scar in the lip. This error has now been so long brought under our notice and so many plans have been devised to avoid it that I venture to think it never occurs at the present time. A much more common fault is the neglect of accurate apposition of the two red edges of the lip, which gives rise when the healing is complete to an unsightly irregularity in the red border of the lip. Every precaution, therefore, must be taken at the time of the operation to get the two upper margins of the mucous surface of the lip exactly upon the same level and to secure them by passing the first suture at that point. There is no difficulty in obtaining accurate apposition in many cases, but the proceeding is by no means easy when the cleft is uneven and one side of the lip is higher than the other.

The recurrence of adenoids is a fertile source of disappointment to parents whose children are so unfortunate as to suffer from these growths. The operation for their removal may be carried out with perfect success, but the predisposition remains. Adenoid tissue grows quickly and the original condition is soon reproduced if reliance be placed too entirely upon operative measures. Too much, therefore, should not be promised as a result of removal, for there is a growing disinclination amongst the more observant mothers to submit their children to operation.

In all these instances the disappointment can be avoided if due care be taken, but I well remember the chagrin with which I watched a baby upon whom I had operated for an imperforate anus where the rectum opened into the vagina. The bowel ended in a well-defined cul-de-sac which it was easy to open from the perineum, but do what I would the aperture closed and the fæces continued to come through the vaginal opening. The recto-vesical fistula was well defined and the defective front wall of the rectum was nicely rounded off by mucous membrane continuous with the back wall of the vagina, yet the parts were too small to allow of complete closure, and any incomplete union of the edges soon broke down. I do not know how such a disappointing result can be avoided except by waiting until the patient has attained to years of maturity.

The greatest disappointments undoubtedly occur in connexion with abdominal operations and in no operation perhaps more often than in those carried out upon the kidney. This, indeed, is so well recognised that in many cases the surgeon contents himself with speaking of an exploration of the kidney and is content to treat the condition which he finds when the kidney is exposed. Before exposure it is often impossible to detect the presence of one or more renal calculi when they are small and embedded in the substance of the kidney, nor it is always easy to distinguish a renal inflammation caused by a stone from one produced by tubercle. Even when nothing is found to explain the symptoms from which the patient suffered an exploratory operation often does good and the patient is freed from pain or discomfort in a most remarkable manner. This satisfactory result is due in part to the effect of local blood-letting, in part to the freeing of the kidney from adhesions, and in part to the division of the tense and perhaps chronically inflamed tissues surrounding it.

Disappointments sometimes await the surgeon and the patient after an exploration of the kidney. Such an one occurred lately to me. A female patient had long suffered from obscure symptoms of renal disease which had quite prevented her from following her occupation and seemed to point to the presence of a stone. I exposed the kidney, opened it on the

convex border, and passed a probe along the whole length of the ureter in order to assure myself that no stone was lodged in it. The patient did excellently for some days after the operation and the lumbar incision healed perfectly by first intention. On the eighth day, however, her temperature suddenly rose to 105°F. and she had a sharp attack of pyelitis. This has become chronic, and whereas her urine before the operation was clear and free from pus it is now pus-laden. On the other hand she is free from pain and is able to perform her daily work in comfort. She is satisfied, but I am not, for I suppose that the operation set fire to a latent tuberculosis. The patient, however, is sometimes disappointed when the surgeon is satisfied—as in the case of the very troublesome people who complain of numbness or hyperæsthesia along the course of the last dorsal nerve after a lumbar exploration of the kidney. Again, both patient and surgeon may be equally disappointed—as happened in the early part of this year when I had operated for the relief of a moveable kidney. I anchored it with three stout kangaroo-tail tendons passed through the whole thickness of the lumbar wall deeply into the substance of the kidney and again through the body wall with the exception of the skin. For the sake of extra security I kept the patient in bed for a month instead of the usual three weeks, and by so doing I undid the good which she had received. She increased rapidly in weight, and whilst she was lying in bed her kidney once again detached itself, the result, I suppose, of a great increase of the perinephric fat. In other renal cases, again (but of these I have fortunately had no personal experience hitherto), much disappointment results from the formation of a small but troublesome fistula, although the operation is perfectly successful in every other way.

The formation of fistulæ is by no means confined to renal operations. There is no surgeon with any considerable experience in abdominal work who has not had occasion repeatedly to study their formation after laparotomies which at first promised success in every way. I have had them after excision of the spleen, after strangulated hernia, after removal of the appendix, after ovariectomy, and after opening the gall-bladder. They occur, of course, under two conditions—immediately after the operation when the escape of pus or other fluid has prevented the wound from healing, and, at a period more or less remote from the operation, when the wound has healed soundly. A fistula of the first kind can hardly be called a disappointment, as its occurrence is anticipated from the time the wound is left to granulate. The more remote fistulæ are really disappointing; for what can be more troublesome than that a wound which has healed well and soundly should inflame after a week, a month, or even a year, at first without any apparent cause, until at length a small abscess forms at or near the scar and a ligature presents? It is not always easy to explain why this happens after the longer intervals, though I have a shrewd suspicion that the cause is the same in every case and that it is due to the use of an infected ligature. The infection may be quite mild and may be situated so deeply in the strands of a stout silk ligature that the leucocytes have first to find their way into the depths of the ligature, where they become infected, die, and so cause the abscess. If this be the cause and the only cause the cure is plain—boil your ligatures. I am not quite sure, however, whether the general health of the patient has not something to do with the formation of an abscess in the more remote cases, for in the interval between the healing of the wound and the first sign of inflammation the patient appears quite well and there is no evidence of any septic absorption.

Internal strangulation of the bowel, like hernia, is fertile in disappointment. There is the wretched condition in which, after the strangulation has been relieved, the patient, as Paget says, "is too exhausted to be conscious of relief and goes on dying though he be carefully fed and

nursed." I had a miserable example of this a few months since in the person of a fine and otherwise healthy young man, aged 21 years, who had been allowed to suffer from intestinal obstruction beginning suddenly a week before he was sent to the hospital. I opened his abdomen and found that a Meckel's diverticulum had attached itself to the rectum and that several feet of intestine had passed under the arch thus formed and had become strangulated. There was no difficulty in relieving the obstruction by dividing the diverticulum, but the bowels were so paralysed and the septic intoxication was so deep that he died in spite of all that careful nursing could do for him. The post-mortem examination showed that he was well anatomically, for I had removed the whole diverticulum and the scar in the intestine scarcely showed. The moral taught by this case is that which nature is never tired of pointing. An operation at the earliest possible moment is demanded imperatively in every case of acute intestinal obstruction.

I have met with the same disastrous disappointment after relieving an intussusception. The following is such a case. A child, aged eight months, who had been ailing for some time, began to suffer suddenly from the symptoms of intussusception on April 7th. I opened the abdomen 13½ hours after the onset of the acute symptoms and reduced an ileo-colic invagination. The child passed a moderately good day on the 8th. His abdomen was flaccid, there was no vomiting, but his bowels were not relieved. On the night of the 9th the patient had two good motions, the first of a reddishbrown colour, the second of a natural yellow colour. The food was well taken on the 10th and the temperature fell to normal. The child appeared to be progressing favourably and I had good hopes that he would recover, for he had two more natural motions during the day. At 8 P.M. on the 10th (69 hours after the operation) the child again began to vomit a brownish fluid. He refused his food, became drowsy and cold, and fell into a condition of profound collapse. The abdomen was supple, the wound was aseptic, but the abdomen gradually distended until coils of intestine could be seen moving beneath the abdominal walls. Matters went from bad to worse, and on the 13th the abdominal wound was gaping widely and the intestines had prolapsed. They were replaced under an anæsthetic, but the child died on the following day. The necropsy showed that the small intestines were distended with flatus to within 12 inches of the ileo-cæcal valve. The distension suddenly stopped at this point, although there was no visible cause for the arrest either outside or within the intestine or abdomen. The colon, like the lower part of the ileum, was collapsed. The thickened ileo-cæcal valve projected a short distance into the cæcum. The valve and the mucous membrane for about two inches beyond it were congested, but there was no intussusception and there were no visible signs of peritonitis. Microscopical examination of a portion of the ileum which had been invaginated showed a slight extravasation of blood into the whole circumference of the submucous coat. The glands, the adenoid tissue the circular muscular coat, and the serous coat appeared to be healthy in every respect. The individual fibres of the longitudinal muscular coat stained less deeply than they should do, and in many cases appeared to have undergone some degenerative change, for they were unduly granular and more highly refracting than usual. The extravasation of blood in the dilated part of the intestine immediately above the point of constriction was slight, but was distinctly visible between the serous and the muscular coats. The layer of external longitudinal muscle presented changes similar to those described above as occurring in the invaginated portion of the gut. The other coats of the dilated intestine were normal.

The case is instructive, for it shows that the symptoms of obstruction may re-appear and even progress to a fatal issue although an intussuscep-

tion in a young child has been completely reduced. The operation in this case was not difficult, no undue force was used, the intestine was not injured, there was no peritonitis visible, and the wound at first showed every disposition to heal kindly. The digestion of food and the normal motions of the intestine for two days after the operation showed that the alimentary canal was able to carry out its physiological functions. Yet in spite of this the patient fell into a condition of what the older writers called "ileus paralyticus"—a condition which we now believe to be always the consequence of peritoneal infection or septicæmia. It is sometimes found after the successful reduction of a strangulated hernia or the successful reduction of a volvulus of the colon, and it is marked by increasing feebleness, passing into collapse, undiminished tympanitic distension, increasing vomiting, and usually, says Mr. F. Treves, but by no means necessarily, a continued inability of the bowels to act. The meteorism was not due in this case to any obstruction, and although the pathologist found no evidence of peritonitis I fear the child died from septic poisoning.

Operations upon the vermiform appendix afford so many surgical disappointments that I think that it is never wise to promise the patient or his friends too much beforehand. The great and immediate disappointment at the time of the operation is inability to remove the appendix, either because it cannot be found or because its attachments render it unsafe to complete the operation. In two of my operations for removal of the appendix it has been quite impossible to find the appendix by any reasonable amount of dissection. The appendix in each case seemed to be packed away behind the cæcum and was apparently lying parallel with it in such a dense mass of adhesions that even a prolonged search failed to find it. In another case the appendix was attached to the bladder in such a manner that its tip had ulcerated through the walls and had caused the appearance of pus in the urine. It was considered inadvisable in this case to attempt any removal of the whole appendix, which was therefore divided, the distal end being left attached to the bladder and the proximal end being removed. The patient made a good recovery and the urine was soon free from pus. Small abscesses are often found in separating the adhesions which have formed round an inflamed appendix and in these cases it is not unusual to find that the wound does not heal by first intention but that a troublesome sinus is left. In other cases the scar of a wound which has united kindly at the time of the operation afterwards yields and a ventral hernia is produced which is as disappointing to the surgeon as it is annoying to the patient.

Mental disturbances following upon a surgical operation sometimes form a remarkable series of surgical disappointments, as they often occur in patients who have passed through life without any suspicion of mental unsoundness, though the event shows them to have been in a state of unstable nervous equilibrium. The disturbances show themselves in many ways. The following cases have come under my notice during the last year. A woman, aged 60 years, came under my care with cancer of the liver associated with attacks of intense pain. She was perfectly rational and collected when I saw her at home, though her husband said that she was very obstinate and had a most domineering temper. She was admitted into hospital for an abdominal exploration, when the novelty of her situation and the bustle of a large ward at once caused her mind to wander. I waited a day or two until she had recovered herself, and then I exposed the gall-bladder and set free many adhesions which had formed between the surface of the liver and the parietal layer of the peritoneum, and thus gave her great relief from pain. Another case was that of a worthy domestic servant, aged 35 years, who had lived in the same situation for many years and had always seemed to be of average mental calibre. I

tied many varicose veins in both legs and, amongst others, the internal saphenous vein high up in the thigh. The wounds had been closed, dressings had been applied, and the patient was ready to leave the operating theatre, when the spica bandage was suddenly soaked with blood. The dressings were hastily removed, the wound in the groin was re-opened, and a large hole was found in the femoral vein. The vein was at once exposed and ligatures were passed round it above and below the rent. The vein was then divided, its walls being little thicker than a piece of tissue paper, and the wound was again closed. All the wounds healed by first intention and the patient afterwards declared that the leg the femoral vein of which had been tied was the more satisfactory of the two. She showed, however, a decided inclination to the formation of bedsores and her mental condition was clearly impaired from the time of her recovery from the anæsthetic. She was garrulous and constantly talked nonsense. Another case was that a man, aged 59 years, but looking much older, whose right upper jaw I removed on account of a carcinoma which had invaded it. Directly after the operation the patient began to suffer from hallucinations and it was necessary to have him watched continuously to prevent his escape from the ward. He died a month later from septic pneumonia. These cases of mental disturbance are always distressing, for they occur as often after slight as after severe operations, and they are said to be especially frequent in the practice of gynecologists and ophthalmic surgeons. They are quite distinct from delirium tremens and traumatic delirium and the failure of power often seems to be general, for when mental disturbance occurs the wounds very frequently suppurate even when every care is taken to prevent interference with them by the patient. Dr. S. R. Macphail says that in his experience at the Derby Borough Asylum he has seen 40 cases of insanity occurring after surgical operations in a total of 990 admissions. 13 of the cases were those of men and 27 were those of women. In only nine was there any hereditary predisposition to insanity. On an average the mental symptoms first showed themselves upon the tenth day after the operation. 24 of the patients recovered, eight became chronically insane, and eight died, four of the deaths being caused by malignant disease. Sir William Mitchell Banks in his recent Lettsomian Lectures has also called attention to the occurrence of acute mania after operations on the breast and points out that the mental confusion and hallucinations depend upon an unstable mental condition and not upon septic absorption or upon the use of such drugs as iodoform and carbolic acid.

Perhaps the most disastrous, but at the same time some of the best-known, surgical disappointments occur in connexion with injuries to bones. Who is there who has not seen trouble after a Pott's fracture which has been well set shortly after the accident? The slight eversion and the accompanying flatness of the foot are always causes of annoyance to the patient. But even when there has been a seemingly good result and time has been allowed to obtain firm union the original deformity may recur if the patient be unusually heavy or if for any reason the amount of repair has been miscalculated. The remedy is an easy one in theory, though it is sufficiently difficult to apply it in practice, for it consists in restraining the natural desire of the patient to get about and to attend to his business at the earliest possible opportunity. It is far better for him, and in the end shorter, to wait until the union is thoroughly sound.

Colles's fracture is fruitful in disappointments and especially when it occurs in old people. Union takes place readily enough, but the connective tissue surrounding the joint becomes so infiltrated with the products of chronic inflammation as to leave a stiff and useless wrist for many months after the accident. It is of the utmost importance, therefore, to support the injured part and to begin passive movement at the earliest possible time, and this is usually on the fourth day.

Non-union is more than disappointing after the fracture of a long bone, for, in children at any rate, it leads to the most disastrous results since it is often necessary to amputate the limb. There is no means of knowing what cases are likely to end in this manner, though the absence of crepitus or muffled crepitus in an unimpacted fracture may lead to the suspicion that some of the soft tissues intervene between the ends of the bone. When there is no mechanical obstacle the tendency to non-union can be reduced by taking care to keep the two fragments of bone absolutely at rest. Thus Mr. Pickering Pick recommends that the shoulder as well as the elbow should be fixed during the repair of a fractured humerus, and in a child I certainly prefer not to trust to a plaster-of-Paris case when both bones of the leg are broken, unless the patient can be carefully watched. It too often happens in the outpatient practice of hospitals that a plaster case is applied to the broken leg of a child, who is then sent home. The mother or relative omits to bring the patient back to the hospital for a fortnight or three weeks and allows the child to sit in a chair swinging his legs or permits him to crawl about the floor. The plaster case becomes soft or the injured leg wastes a little from disuse, and the case, which fitted well enough at first, soon becomes too loose. In either case the two fragments of bone move upon each other in such a manner as to prevent the production of callus and non-union is the result. The remedy is simple for the child has only to be kept under observation, and non-union, at any rate in children, is a very rare accident.

The formation of a conical stump after amputation is always annoying and may be disastrous to the reputation of a surgeon. It is well recognised that conical stumps rarely occur in adults if sufficient care be taken to fashion the flaps properly and to saw the bone at a sufficiently high level. Yet they do occur sometimes when every precaution has been taken and more particularly after primary amputation in largely built and robust individuals whose muscles and connective tissues shrink much more quickly than their bones atrophy.

It is sometimes quite impossible to prevent the formation of a conical stump in children and young adults, especially after amputation through the upper arm and the leg. The humerus, the tibia, and the fibula chiefly grow in length from their upper epiphyses. It may happen, therefore, after amputation that these bones grow more rapidly than the surrounding tissues and the end of the stump may taper more and more until ulceration takes place and the bones protrude. Such a conical stump is seen occasionally after an intra-uterine amputation.

Injuries of nerves are another source of disappointment in connexion with fractures either on account of the pain or because of the paralysis which is produced. Implication of the musculo-spiral nerve in a fractured humerus, compression of the ulnar nerve after an injury to the elbow, and injury to the external popliteal nerve from a fracture involving the neck of the fibula have given me considerable trouble at various times. The results of operative interference in these cases have never been very satisfactory, for though the patient is relieved he is never as well as he was before the accident and he is certainly never as well as I should have liked to see him.

Operations for the relief of chronic neuralgias are always more disappointing, for the cerebral cortex seems to become so impressed with the sense of pain that as soon as one source is removed another is made. Two such cases are under my care at the present time, the one a woman with coccygodynia, whose coccyx was fixed almost at a right angle with her sacrum, so that it pressed inwards upon the rectum; the other a man with violent pain referred to the ends of the right fifth nerve. The woman is convinced that her pain, if anything, is worse since I removed her coccyx;

the man, who had a few weeks' relief after I had cut away a part of his inferior dental nerve, now suffers agonies in the terminal branches of the superior division.

Dislocations are perennial sources of disappointment, more especially when they involve the larger joints, such as the hip. The text books on surgery teach us so glibly about the methods of reduction by manipulation that it is only by bitter experience we learn that there is another side to the question—that some dislocations cannot be reduced, that other can only be partly reduced, and that others, again, when they have been reduced, leave a useless joint. When it is impossible to reduce a dislocation it is better, I think, to wait for a time and to see what provision nature will make, rather than proceed to the performance of any surgical operation, but if the pain is very severe and the limb is very useless operative interference at an early period seems to be fully justifiable.

These, gentlemen, are some of the disappointments which attend the practice of surgery. I have no reason, however, to suppose that we have a monopoly of them as general surgeons. The ophthalmic surgeon, I know, has his troubles after operations for strabismus, or when a troublesome piece of capsule mars the effects of an otherwise perfect operation for cataract. The orthopædic surgeon is not always contented with the results of his operations for talipes. The gynecologist too often lands himself in a sea of trouble after an apparently simple operation; whilst the general practitioner himself is soon disillusioned of the glamour of his profession and is apt to become the most disappointed of any of us, for he sees the failures of all. But in spite of this we should agree with Goethe that the most successful man is he who cares least for disappointments, though he is ever learning from his failures.—*Lancet*, Dec. 22, 1900.

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Dr. M. PICARD, of Nantes, France, writes to the author: "I have first to thank you for the great pleasure and also the great profit which I derive every day from the reading of your *Dictionary of Materia Medica*. I find there, better than anywhere else, brought together and condensed, the practical indications scattered in Allen, Hering, Farrington, &c. It is a great economy of time, and in the part already published this good book replaces for me all the rest. That it is not exclusively a *résumé* of experiences on the healthy is for me of no matter; it is to me very useful and more practical than its predecessors, and it is this which will make it more and more appreciated. For these reasons, I await with lively interest the publication of the second volume."

The *Revue Homœopathique Française* of October says: "The first volume goes from the letter A to H, and contains pathogenesies of NEW MEDICINES WHICH ARE NOT TO BE FOUND IN ANY OTHER MATERIA MEDICA. THIS FACT ALONE RENDERS IT A NECESSITY FOR PRACTITIONERS TO PROCURE THIS USEFUL VOLUME."

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[No. 2.

OUR LATE BELOVED QUEEN-EMPRESS VICTORIA.

ON THE 22ND OF LAST MONTH passed away the greatest sovereign not only of the nineteenth century, but of the Christian era, and, if we except mythical personages, perhaps of the world since the dawn of monarchical government. After a long life of eighty-one years, necessarily chequered by joys and sorrows, but firm and resigned to the Almighty Will in the midst of them all, after a glorious reign of sixty-three years building the largest empire that has ever existed and beloved of all her subjects, VICTORIA THE GREAT AND THE GOOD entered her eternal rest, leaving not only those who owned her sway, but all the world besides, to mourn her loss. We reproduce, as our humble tribute to her memory, what we said in our letter to the Chairman of the Special General Meeting of the *Indian Association for the Cultivation of Science*, held on the 31st January to record its feeling of grief at the demise of this Sovereign Lady.

SIR,—I can scarcely express the regret I feel for my inability to attend the meeting this evening. This is the first time I am obliged to be absent from a meeting of the Science Association, and that time on an occasion the most solemn in its history. But it is the ordering of Providence, and I must submit.

I regret, not because I could have been of any use to the meeting which I am confident would be conducted with all seriousness and solemnity befitting the occasion. My regret is that I am deprived of the privilege of being present at a meeting convened for the purpose of showing publicly the unbounded love and veneration we all had for our late beloved Sovereign and the ineffaceable grief of our heart at her loss.

It is not possible to recount at a meeting the virtues of Queen Victoria. If we were to dwell upon the many incidents of her life and career which show forth those virtues for as many years as she lived, I do not think we should even then be able to do justice to them. She was a unique personality in the history of the world, and history will pronounce its judgment upon her as Woman and Sovereign. She will live in the grateful memory of the world as few of her sex have done or will do.

We, who were privileged to live under her benign sway, have our hearts so full that we can scarcely give adequate expression to all that we feel.

In these latter days which constituted the nineteenth century and the last two-thirds of which was emphatically the Victorian Era, Science has revealed many truths in the Physical World which declare the Might and the Glory and even the Love and the Righteousness of the Creator.

But I do not think any truth yet discovered can equal in its beneficent operation upon all mankind that which in the Divine evolutionary process is bursting forth before us in its full effulgence.

That truth, in my humble opinion, 'dear brethren, is that woman is rising from the subordinate position which she had hitherto held and in which we, in our selfishness, had endeavoured to keep her, to her rightful co-ordinate position with man.

I venture to think that the sublimest poet of the world did not express the whole truth when he said in reference to the first man and woman :

For contemplation he and valor formed,
For softness she and sweet attractive grace.

Stubborn facts, which specially recent times have unfolded, cannot but convince us that while woman's heart is really and vastly superior to man's, her intellect, if allowed fair play, can compete on equal terms with his. Nay, in some instances, her natural acuteness and the exquisite fineness of her temperament are likely to give her and do give her the advantage even in matters intellectual.

Brethren, to my mind it is a significant fact that one of the most enlightened and most divinely inspired religions of earth should have represented God as choosing to be born of woman

without the agency of man, and that it should also have represented a resurrected God showing Himself first to woman. These representations, in my humble belief, enshrine the sacred and glorious truth of which I have spoken.

I need hardly remind you, my Hindu countrymen, that the same truth is expressed no less forcibly in our own Shastras, which, unable to represent the Deity in all His attributes as Father alone, have represented Him as both Father and Mother.

If you will permit me, brethren and fellow mourners, I will venture to say that to my humble mind the life and career of our late Queen-Empress was one of the clearest and brightest demonstrations of this most beneficent truth.

It is natural, it would have been unnatural if it had been otherwise,—it is but natural, that the loss of such a life should be so universally mourned, by the British nation of whom Queen Victoria was the noblest product, by all India which she loved with a truly mother's love, and by the whole world to which she was such a glorious example of all that was pure and lovely in woman and of all that was wise and gracious in a monarch.

But while we mourn with almost unbounded grief we have this consolation that it has pleased Providence to take her away from us in the fulness of years. She has gone to a place where there is not only repose from cares and anxieties and sorrows, but where there is a better and higher life according to our faith in God and according to our deeds (Karma) in this world based upon that faith. Death is not the end of the life here below. It is merely the momentary severance of our relationships with this world which, in view of the existence hereafter, is but a "fleeting show." From this fleeting show our Sovereign mother has been transplanted to a sphere where there is blessedness and joy for ever.

We give below an official account of her last illness as it appeared in the *British Medical Journal* and in the *Lancet*, for the 26th January 1901. The *Lancet* has observed: "To the grave public anxieties and private griefs of the last 18 months of her reign her death may possibly be attributable in a secondary degree, but the end came as a peaceful and natural conclusion of a long, full, and beautiful life. Her Majesty died at half-past six o'clock in the afternoon of Tuesday, Jan. 22nd, in the eighty-second year of age, the immediate cause of death being cerebral failure."

THE LAST ILLNESS OF THE QUEEN.

"We are enabled to publish the following authoritative account of the last illness of Queen Victoria :

The Queen's health for the past twelve months had been failing, with symptoms mainly of a dyspeptic kind, accompanied by impaired general nutrition, periods of insomnia, and later by occasional slight and transitory attacks of aphasia, the latter suggesting that the cerebral vessels had become damaged, although Her Majesty's general arterial system showed remarkably few signs of age.

The constant brain work through a long life of Royal responsibilities, and the Imperial events, domestic sorrows, and anxieties which have crowded into later years, may no doubt be held in some measure to account for this discrepancy between the cerebral and general vessel nutrition. The thoracic and abdominal organs showed no sign of disease.

The dyspepsia which tended to lower Her Majesty's originally robust constitution was especially marked during her last visit to Balmoral. It was there that the Queen first manifested distinct symptoms of brain fatigue and lost notably in weight.

These symptoms continued at Windsor, where in November and Dec., 1900, slight aphasic symptoms were first observed always of an ephemeral kind, and unattended by any motor paralysis.

Although it was judged best to continue the negotiations for Her Majesty's proposed visit to the Continent in the spring, it was distinctly recognised by her physicians and by those in closest personal attendance upon her that these arrangements were purely provisional, it being particularly desired not to discourage Her Majesty in regard to her own health by suggesting doubts as to the feasibility of the change abroad to which she had been looking forward.

The Queen suffered unusual fatigue from the journey to Osborne on December 18th, showing symptoms of nervous agitation and restlessness which lasted for two days. Her majesty afterwards improved for a time, both in appetite and nerve tone, in response to more complete quietude than she had hitherto consented to observe.

A few days before the final illness transient but recurring symptoms of apathy and somnolence, with aphasic indications and increasing feebleness, gave great uneasiness to her physician.

On Wednesday, January 16th, the Queen showed symptoms of cerebral exhaustion. By an effort of will, however, Her Majesty would for a time, as it were, command her brain to work, and the visitor of a few minutes would fail to observe the signs of cerebral exhaustion.

On Thursday these symptoms were more marked with considerable drowsiness, and a slight flattening was observed on the right side of the face. From this time the aphasia and facial paresis, although incomplete, were permanent.

On Friday the Queen was a little brighter, but on Saturday evening there was a relapse of the graver symptoms, which, with remissions, continued until the end. It is important to note that notwithstanding the great bodily weakness and cerebral exhaustion the heart's action was steadily maintained to the last, the pulse at times evincing increased tension, but being always regular and of normal frequency.

The temperature was normal throughout. In the last few hours of life, paresis of the pulmonary nerves set in, the heart beating steadily to the end.

Beyond the slight right facial flattening there was never any motor paralysis, and except for the occasional lapses mentioned the mind cannot be said to have been clouded. Within a few minutes of death the Queen recognised the several members of her family."

We take the following from the *British Medical Journal* as giving an interesting account of the relationship of the late Queen to the medical profession in general and to her immediate medical advisers in particular. We do not know in what light she looked upon the New School. Perhaps she was not allowed to know anything about it save ludicrous misrepresentations of it. But we know that some members of the Royal Family are patrons of the School, and His Majesty Edward VII., when Prince of Wales, was a great friend of Dr. Quin, the introducer of Homœopathy into England.

"QUEEN VICTORIA AND THE MEDICAL PROFESSION.

THE NATION'S LOSS.

In this first hour of our loss words can but feebly express the intensity of the nation's sorrow. The day when Queen Victoria was taken from the world in which, for more than two generations, she had been the most conspicuous figure, is best described in the words of the Roman historian in speaking of the death of another great ruler as *dies solitudinis castus*. It was indeed a day made lonely by solitude even in the crowded cities of the great Empire over which the Queen had ruled, for the lowliest of her subjects felt that something which had grown to be an integral part of himself had gone out of his life, and that the removal of the Gracious Lady, whose abiding presence had been to him the chief link with the larger world outside his own narrow sphere, had made for him what was indeed a solitude.

We feel that it would scarcely be fitting to say more at this time than that the medical profession fully shares in the universal

grief for the loss of the best and most beloved Sovereign that ever sat on a throne since the beginning of history. To us the end of a reign which has been made glorious by most fruitful discoveries in science and by the greatest improvements ever made in our art, comes with a special sense of sadness as marking the close of a most glorious epoch in the history of medicine. But besides this feeling of sentimental though genuine regret, it must be said that the medical profession had particular cause to love and venerate the departed Queen. Throughout her long and eventful reign Queen Victoria had more to do with it than the great majority of her subjects. Though fortunately she suffered comparatively little even of the infirmities of age in her own person, she was tried far beyond the average experience of mankind by the sight of illness and death among those near and dear to her. Her Majesty's own most precious life was from the first to last assiduously watched by men of the highest skill and character, in whom not only the august patient herself but the general body of the profession to which they belonged had the fullest confidence. This fact is worth mentioning, for even Sovereigns, being human, have sometimes chosen as the keepers of their bodily health persons not altogether worthy of so responsible a trust.

"HER MAJESTY'S RESPECT FOR THE PROFESSION.

We are able to state on the highest authority that the Queen had the greatest respect for the medical profession, and took keen interest in all fresh discoveries which tended to the alleviation and cure of diseases. She appreciated in an especial manner the discovery of anæsthesia. To her, indeed, the general acceptance of that inestimable boon was largely due. In 1853, at the birth of the late Duke of Albany, she submitted to be placed under the influence of chloroform. Dr. John Snow was the administrator and it may be mentioned that the anæsthetic was given in 15-minim doses, and the illustrious patient was kept nearly an hour under its influence. Dr. Snow described Her Majesty as "a good patient;" and such, it may be added, she has been whenever she has had to put herself under medical governance. To appreciate the courage of the Queen, and her confidence in her physicians on the occasion just referred to, the fact should be recalled that at the time the use of chloroform was still being denounced by religious fanatics as a "decoy of Satan," an impious evasion of the curse pronounced by the Almighty on all daughters of Eve, while not only the public, but prominent members of the medical profession regarded the beneficent agent with suspicion.

"HER INTEREST IN MEDICAL PROGRESS.

The Queen was also greatly interested in the antiseptic treat-

ment, which, with anæsthesia, she regarded as the two most striking and far-reaching practical advances in medical science during her reign. She looked with confidence for fresh triumphs by the men who were quietly and laboriously working for the good of mankind. How fully this confidence was justified up to the end of her reign there is no need to point out here. The interest she took in the progress of medicine was doubtless increased by the fact that so many of the men to whose genius and labour it was due were her own subjects. It is not too much to say that the expansion of the empire of medicine which has taken place in the Victorian era is one of the greatest glories of a most glorious reign.

“HER CONFIDENCE IN HER PHYSICIANS.

Of Her Majesty's relations to those who had the privilege of ministering to her in illness, we are able to state on the best authority that they were throughout her life of the most satisfactory character. She always treated her personal physicians with the greatest confidence and consideration; and their advice was always received by her with trust and reliance. Throughout her reign she was in the habit of consulting them on many confidential matters outside the sphere of their professional duties, and they formed an essential element in the inner working of the life of the Court.”

THE OPIUM PUZZLE IN HOMŒOPATHIC PRACTICE

BY DR. CHANDRASEKHAR KALI, L.M.S.

Whether opium should be allowed to an habituated opium eater when he comes under homœopathic treatment, is a question which very often puzzles members of our school.

Opium in this country has of late been so extensively used both by men and women that it may be said to have become almost an article of their daily food and drink. We have come across numerous patients in whom the very centre of vitality seems to be in the highest stretch of excitement, when the hour has been over for taking the habitual dose of opium. At this juncture even the best selected remedies will fail to produce the desired effect. It is therefore advisable that opium should never be prohibited to be taken in the usual dose, in the case of the patient habituated to the use of it. Put him upon the habitual dose, at the usual hour, and there can be no reason to apprehend that your actual potentised homœopathic remedies would become nugatory or inefficacious under the action of that drug.

The full explanation of this theory is not far to seek. We all know that common salt enters in such super-abundance into the human system along with almost everything we take in, that it is very properly recognized as an essential article of our daily food. A large quantity of salt is always present in the stomach and in the entire system, which can be easily perceived, or detected in such fluid secretions as the humid exudations in perspiration, the lachrymal excretions, and in the blood. Nevertheless our *Natrum M.* never fails to be efficacious, when introduced homœopathically into the system for the purpose of removing particular maladies. Under these circumstances when salt in a potentized form can be so admirably converted into a curative agency in the human organism which is always saturated with salt, we have no reason to apprehend that other remedies, similarly administered will fail to act curatively in a system accustomed to habitual doses of opium. I am confident that homœopathic remedies will ever act in such a condition. My personal experience of cases without number emboldens me to order the continuance of this drug in the usual doses, to patients who habitually use it, and I have found not only that homœopathic medicines act in

spite of these doses, but that they would not act without them. The following cases, which came under my observation and treatment will convince any body of the truth of these remarks.

(1). Babu—'s mother, æt 55, of Sunra (Calcutta Suburbs), a habitual opium-eater for a long time. In an attack of cholera, I found the watery stool had been arrested but the vomiting still continued. Her opium habit, which was not at first known to me, led me to prescribe *Ipecacuanha* which had a miraculous effect in effecting a speedy cure.

(2). Babu Jogesh Chandra Banerji, Proprietor of the well-known book-stall, "the Canning Library," had a relative suffering from intestinal disorders. Allopathic drugging had been of no avail, and homœopathy, which was only subsequently called in, had been discarded at first, under the erroneous belief in its absolute abortiveness, inasmuch as the patient was a habitual opium eater. I put him upon the usual dose of opium to which he had been accustomed, and prescribed *Merc. sol* 6x, which cured him in a couple of days. Babu Jogesh Chundra, as well as his friend, the patient, was surprised at the efficacy of homœopathic remedies under the continuance of *opium* in this case.

Babu—— Chatterji, of Nimta, a Government pensioner and a diabetic for a long time past, had an attack of remittent fever which could not be cured by allopathy. A few doses of *Lachesis* 30x followed by *Ars.* 30x led to a complete cure. This was the only occasion on which he had recourse to homœopathy. He was addicted to *opium*, which we did not discontinue during our treatment.

In 1893, July 5, at Durjeeparah, Calcutta, two old men aged about 65 years, and hard opium-eaters, were simultaneously attacked with cholera. A careful perusal of the following reports of their cases will be found instructive.

1. Bhuban Dass, from 3 A.M., had greenish watery evacuations, accompanied with vomiting and intense thirst. I prescribed *Acon* 1x every hour. Neither the purging nor the vomiting could be arrested; the former became involuntary and the vomiting followed each drink. The purging yielded to the subsequent administration of a few doses *Verat* 3x, every two hours, but the vomiting continued the same, shortly after each time the patient

drank, the fluid ejected was deep green. It yielded at last to *Phos 3x*, 3 or 4 doses, and the patient felt full relief. Bhuban was long habituated to *opium*, twice daily, the usual dose being as large as an ordinary *bean*. I allowed him the habitual dose of the drug during the treatment, and he recovered rapidly.

2. Ananta Dass had an attack of cholera, the stool and vomiting, being characteristic of the *Asiatic Type*, led to utter prostration in 3 or 4 hours. I found the pulse almost imperceptible, and prescribed *Acon 1x*, every hour. After 4 or 5 doses, the stool and vomiting were arrested, but the pulse did not return; there was no sweat. The patient's eyes were congested and there was intense thirst. After 3 or 4 doses of *Ars 30x* every 2 hours, the pulse became perceptible. I discontinued *Ars*. After 3 or 4 hours, the pulse became again imperceptible and the palms and fingers black. There were symptoms of dyspnoea, but no restlessness. I became almost hopeless, but one dose of *Lachesis 30x* acted like a charm. The next morning I found the blackness had completely disappeared from the palms and fingers, which now had almost their natural colour; the beatings of the pulse were almost normal, and there was no difficulty of breathing. But there were occasional stools, passed involuntarily of a green colour, accompanied with thirst. I prescribed *Verat Alb 3x*, four doses, every 2 hours. This arrested the stool but brought on hiccough, which was subsequently cured with *Bell*. The patient was completely cured.

Remarks: Both Ananta Dass and Bhuban Dass were long habituated to *opium*, morning and evening, each dose being of the size of a common bean. Upon their earnestly asking me for opium I allowed it in the habitual dose, neither more nor less, at the usual hour. This did not stand in the way of the efficacy of my remedies, each medicine producing the usual effect.

I would ask my colleagues not to entertain the idea, for a moment, that the efficacy of potentized homœopathic remedies, can be easily spoiled to any appreciable extent. In the case of habitual opium-eaters, in particular, the narcotic becomes an article of their daily dietetic regime. In fact it turns to be an element of their system. To them it may be called their habitual special food. If you do not allow it at the usual hour and dose to your patient, your remedies stand the chance of losing their remedial

power in many cases. I have come across opium-eaters who can go without water or any other drink for two whole days, but who can hardly endure the death-like agonies consequent upon the absence of the habitual dose of opium even once a day. In the earliest days of my practice, I proceeded half-heartedly in the continuance of this drug in patients under homœopathic treatment, but subsequent experience has dispelled this misconception.

I, therefore, allow *opium* to the patient habituated to its use and go on putting him on the regular dose at the usual hour. Our revered Dr. Mahendra Lal Sircar never discontinues opium and the late Dr. Behari Lal Bhaduri used to say that, throughout the entire course of his practice, he never prohibited the habitual drug to regular opium-eaters, and the remedies he chose in such cases never disappointed him to produce the desired effect. We ourselves have observed the marvellous effects of opium 30x in the case of opium-eaters. The cases are very rare in which the patients of their own accord express a disinclination for the habitual drug during homœopathic treatment, and in such cases there is no harm in discontinuing opium.

[We fully agree with Dr. Kali as to the propriety and necessity of administering his habitual opium to the opium-eater, when he comes under homœopathic treatment. Indeed, we were the first to direct attention to this necessity as absolute, as without his habitual opium, the patient gets worse and worse, and ultimately dies, in spite of our best-selected remedies. Cases have been published in this Journal which show that not only homœopathic medicines act even when the opium is being taken, but that opium itself, in its attenuated forms, produces its beneficial homœopathic effects in the habitual opium-eater. It is necessary, however, that we should administer due caution to our young colleagues, and that is, that it is not always safe to allow the full habitual dose, especially when the patient is exhausted by disease, such as cholera in particular. It is safer to feel our way, as it were, by beginning with reduced doses.—EDITOR, *Calcutta J. Med.*]

PUNSAVANA; OR THE CAUSING THE BIRTH OF A MALE CHILD.

BY DR. SURENDRA NATH GOSWAMI, B.A., L.M.S.,

(Continued from Vol. xix, No. 12, p. 500.)

But from the commencement of the fifth week certain structural changes begin to be observed in it, in the form of the embryonic area, which becomes slowly marked off from the rest of the body and assumes one of the three following forms:—

I. It may remain muscle-like in appearance.

II. It may be irregular or tumour-like in shape.

III. Or it may look completely round or oval. (34)

The scientific value of the preceding observations increases in strength, when we compare them with the following lines in Dr. Quain's Elements of Anatomy. "In both birds and mammals the embryonic area from being simply round at first becomes soon somewhat pyriform and subsequently oval or contracted in the centre like the body of a violin. But it appears from the observation of Düsing and Balfour in the chick, and of Hensen in the rabbit, that the primitive trace and groove which are the first indication of embryonic formation are only transitory and evanescent."

In spite of this rapid transition of form, this particular change may serve as an indication of the future sex of the offspring. No other characteristic symptoms present themselves to the eye, by which the sex of the future individual can be distinguished, until the 3rd month of gestation, when at last the head and ex-

34. तत्र प्रथमे मासि कलनं जायते द्वितीये शीतोद्धानिलै

रभि प्रपच्यमानानां सङ्क्रान्तानां संक्रान्तौ घनः सङ्क्रायते,

यदि पिण्डः पुमान् स्त्रीत्वेत्पेक्षी नपुंसकार्थुदमिति—चरकः

35. तृतीयेत्वङ्मूत्राः पञ्चकरादि शिरसी ज्ञताः—योगार्चनः

34. In the first month, a semifluid substance grows out of it; in the second, a change is perceived therein, by the counter-acting forces of heat and cold and by the agency of the vital air transforming the fluid mass into a dense substance. Now if this holds the appearance of a round body a male child is produced; if longitudinal in appearance a female child, in case of its having a tumour-like or irregular shape a hermaphrodite birth is expected.

35. In the third month, neuclei of the five, the two extremities and the head, appear.

limbs become distinctly visible. It is only in the 4th month that the sex of the child can be ascertained on inspection (35-36).

As further steps in the history of foetal development are outside the province of this small treatise, we will refer our readers to the following slokas, for the rest of the foetal history (37-38).

CHAPTER V.

THE THEORY OF SEXUAL METAMORPHOSIS.

With these preliminary observations we will now start to discuss the real subject matter of our discourse.

36. तृतीये मासि सर्वेन्द्रियानि सर्वाङ्गावयवाश्च योगपट्ये नाभिनिवर्त्तन्ते
चतुर्थे सर्वाङ्गप्रत्यङ्गविभागः प्रव्यङ्गतरो भवति । चरकः यः

37. इवत्वं प्रथमे मासि कललाख्यं प्रजायते ।
द्वितीये तु घनपिण्डः पेशीवा घनमर्बुदं ॥
तृतीये नपुंसकानाम् प्रागवस्थाः क्रमादिभिः ।
तृतीयेत्यङ्गुरा पञ्चकरादि गिरसो मताः ॥
अङ्गप्रत्यङ्गभागाः स्तुः स्तुः स्तुः युगपच्छ्रदा ।
चतुर्थे व्यङ्गता तेषां भागानामभिजायते ॥
प्रवृद्धं पञ्चमे पिण्डं मांसयोश्चितपुटिभाक् ।
षष्ठेऽस्थिस्त्रायुनाद्यादिनखकेशविविङ्गता ॥
सप्तम्यौ चोपचितौ सप्तमे त्वगपूर्णता ।
अष्टमे त्वक्शुती स्यात् ओजश्चेतश्च हृद्भवः ॥ योगार्णवः

36. In the same month all the organs of sense and limbs with all their parts are simultaneously formed, but they are developed in the fourth.

37. In the first month a semifluid substance named *Kalala* is formed, in the second a dense round mass or a longitudinal body or a dense tumour shaped substance is generated, indicating respectively a male, a female, or a hermaphrodite issue. In the third month nuclei of the five—the two extremities and the head as well as the nuclei of the limbs with their parts are simultaneously formed; but they are developed in the fourth.

In the fifth the dense mass is developed by the supply of flesh and blood. In the sixth, bones, ligaments, vessels, and nails and hairs make their appearance.

In the seventh the foetus gains much in vitality presenting pigments of colour; but the skin is not yet fully developed.

In the eighth the skin and the ears are developed as well as the vitalizing substance seated in the heart.

The western science of embryology has clearly demonstrated that differentiation of sex takes place in the very early stage of embryonic life. It has also been satisfactorily proved that under artificial influences we can substitute one sex for the other. But it is for a certain period of embryonic life only, that we can exercise this control over the phenomenon of sexual metamorphosis. Beyond a fixed period no such influence can be exerted. (§9-40)

According to Dr. Quain, the distinction of sex begins to be perceptible in the internal organs of the human embryo in the seventh week and it becomes more apparent in the eighth. In other words, if sexual metamorphosis is to be brought about, artificial means should be adopted not later than this period. Professor Schenk of Vienna hopes to bring about sexual modification even in the 3rd month of gestation. Though most of the

38. कर्णाक्षिनासिकारन्ध्रं कण्ठोदरश्च पञ्चमे ।

षष्ठे मुखं तथा पादौ सर्वाङ्गानि तु सप्तमे ॥

सन्निवस्यूर्ध्वतां याति अष्टमे मासि वै ततः । योगभाष्ये

39. अव्यक्तः प्रथमे मासि सप्ताहान् कलली भवेत्

गर्भः पंसवनाख्यत्वं पूर्वं व्यक्तेः प्रयोजयेत्

वली पुरुषकारोद्दि दैवमप्यतिवर्त्तते । वाग्भटः या १ अ ४१।४२ श्लोः

40. अत्र कललीभूते यावत् स्त्रीपुरुषाद्युत्पत्ति

लक्षणा व्यक्तिर्न भवति तावत् व्यक्तेः

प्राक् प्रथमे मासि पंसवनादि प्रयोजयेत् । अरुणदत्तः वाग्भट्टीकायां

38. In the fifth month, ears, eyes, nostrils, throat and abdomen are formed.

In the sixth the face and the feet and in the seventh all the limbs (are formed). In the eighth the joints, become complete.

39. In the first month, it presents no indication of sex ; in a week it becomes semifluid. Hence it is expedient to perform *Punsavana*, i.e., to adopt measures for causing the birth of a male child before any distinction of sex begins to appear. For a strong endeavour often times overcome what is ordained by fate.

40. As in its semifluid condition the distinction between male and female is not at all established, so, before the appearance of sexual distinction in the first month, the ceremony of *Punsavana* must be performed.

Hindu embryologists, as we have already remarked, are not much hopeful of success if the attempt is made later than the first month, we still find, in some works of Tantra, the view of Professor Schenk subscribed to with great ardour. (41)

Though there are records in history of sexual metamorphosis late in life, we will confine our remarks to those cases only which occur in the early developmental stage of the foetus. Instead of treading upon the controversial path that leads to multifarious theories of sex, we intend to take a short view of the problem by dividing our subject into two principal groups *viz.*—I. The sex as determined before coitus. II. The sex as determined after coitus.

The theories that belong to the first group count amongst their number the opinions of several eminent naturalists of Europe. Hencke, for instance, holds that the generative elements of the right testicle serve to fructify ova from which males alone are generated; those of the left testicle fructify ova that develop into the female offspring. (42)

The next doctrine propounds almost the same thing, with this difference, that the right and left ovaries are said to perform the same functions which Hencke attributes to the right and left testicles.

The third view is rather of a compromising character. It holds that to produce a male offspring the generative products of the right testicle must come in contact with the generative elements of the right ovary, and so forth.

41. जाते बर्मे ऋतौ तस्मिन्नन्यस्मिन् वा महेष्टरि ।

तृतीये गर्भमासेषु चरेत् पुंसवनं गृही ॥ महानिर्व्यायतन्त्रम्

42. पुत्रचेष्टिष्ये पार्श्वे कन्या वामेष्ट तिष्ठति ।

अपुंसकस्तूदरस्य भागे तिष्ठति मध्यमः ॥

अतोदक्षिण पार्श्वे तु येते माता पुमान् यदि । शिवगीता

41. Just upon conception, or during that menstrual epoch or at any time even in the third month of pregnancy, the house holder can perform Punsavana.

42. The male child lies in the right side, the female in the left and the hermaphrodite in the central part of the (lower) abdomen. Hence it is found necessary for the mother to lie on her right side, if there should be a male birth.

The ideas of our countrymen about this subject were almost in the same line with those stated above.

To show this still more clearly to our readers, we must fall back upon the first chapter of this treatise and present to them the full text of the following lines (42a).

From the above paragraph we are led to the conclusion that the *Gauri* is endowed with the power of producing seeds for the male births. The sexual desire is very great in the human female when this organ is actively engaged in the manufacture of seeds. The *Chándramasi* produces seeds for female births; but the sexual desire of the female is never so great as it is in the first case. If we now take into consideration the homologous character of these female structures with the male seminal organs, we must be necessarily driven to the same conclusion which is advocated by Hencke and his rivals (43).

42a. गौरीति नाडी यदुपस्थगर्भे

प्रधानाभूता भवति स्वभावात् ।

पुत्रं प्रसूते बहुधाङ्गनानां

कटोपभोग्या सुरतीप्रवेशात् ।

याचाधरा चान्द्रमसी च नाडी

कन्दर्पगेहे भवति प्रधाना ।

सा सुन्दरी योषितमेव सृते

साध्या भवेदत्यरतोत्सवेषु ॥ भावमित्रः प्रथमभाषः

43. हे शुक्रवहे,—हे शुक्रप्रादुर्भावाय हे विसर्गाय ।

ते एव रत्नमभिवृद्धतो नारीणामार्त्तवसंज्ञं ॥ सुश्रुतः शा-ई चः

42a. The *Gauri* lies in the interior of the organ, and is, by nature, the most important structure. It brings on the seeds for male births; the sexual excitement becomes very great, when this structure is engaged in the manufacture of seeds. The third tube which is called the *Chándramasi* is equally important and is situated in the interior. It produces seeds for female births. The voluptuous sensation becomes less excited when this structure is engaged in the manufacture

43. There are two structures to carry the semen; two for generating it, and two for ejaculating it. So, in the female, there are found homologous structures that are employed in carrying off the *śrīṭapa*.

(To be continued.)

EDITOR'S NOTES.

Photographing the Interior of the Stomach.

Drs. Lange and Melzing have succeeded, *Med. Zeit* says, in taking photographs of the mucous membrane of the stomach in the living subject. A stomach tube, 66 centimeters long, with a diameter of 11 millimeters, is introduced, having at the lower end an electric lamp and at the upper end a camera. The stomach is first emptied and washed and then distended with air. Then fifty pictures can be taken in rapid succession in from ten to fifteen minutes. By turning the apparatus on its own axis all parts of the mucous membrane can be pictured. The photographs are about the size of a cherry-stone, but of course they can be enlarged to any extent.—*Medical Times*, Jan.'01.

Walking During Pregnancy.

Tucker (*Med. News*) recommends that obstetric patients should be encouraged to walk a good deal during the last months of pregnancy. He thinks this an excellent form of exercise and believes that it favors engagement of the fetal head. The walking should be increased more and more toward the end of the pregnancy. If at the end of eight and a half months the head is not engaged the daily walk should be increased one-half mile each day, until the patient is walking at least six miles. Another exercise that is of great service is for the woman to lie in bed and lift herself up to a sitting position without support. This brings into play her abdominal muscles. It increases their functional capacity, makes them of more service during the actual labor itself and presses the head well down into the pelvis before labor begins.—*Medical Times*, January, 1901.

The Diagnostic Value of the Heaving Impulse.

Mollard (*Lyon. Med.*, December 23rd, 1900) protests against the importance attributed by certain authors to the so-called *choc en dome* as a cardinal, even a pathognomonic, sign of aortic incompetence. He has found the phenomenon well marked both on inspection and palpation, in two recent cases of mitral stenosis, in which careful examination failed to discover an aortic diastolic murmur or Corrigan's pulse. Both cases presented on palpation a cardiac impulse which is described as like a ball which hardened during systole, an impulse increased in force and extent. No murmur could be detected at the base in either case, but in both a diastolic murmur was heard at the apex, in one instance propagated to the axilla and back, in the other limited. Mollard states again that he has observed the typical heaving

impulse in convalescence from typhoid fever, in a case which presented no sign of aortic disease; and he believes that it is simply an indication of hypertrophy of the walls of the heart. During the last year, out of 11 cases of aortic incompetence, of rheumatic or arterial origin, the *choc en dome* was present in 5 and absent in 6 cases.—*Brit. Med. Journ.*, Jan. 19, 1901.

Tobacco.

Though not strictly an article of diet, tobacco for practical purposes may be discussed in this category. Thoms, *Apotheker Zeitung* (*Amer. Therapist*) finds as follows: Twenty per cent. of the total weight of cigars remains in the ash. There are two alkaloids present, nicotine and pyridine, the latter being derived from the former. The stump contains four times as much nicotine as the smoke, and as the average cigar contains only 1.12 per cent. of nicotine, comparatively little of either alkaloid even reaches the mouth. In the ordinary method of smoking, it is obvious that a large part of the smoke is lost and that most of that taken into the mouth is blown out with its alkaloids unabsorbed. Hydrocyanic acid, reported by other analysts, was not found by Thoms, though he does not positively deny the possibility of its presence. Butyric acid was found only in traces. In short, the only constituents that could be harmful were carbon monoxide, produced to the extent of 20 c.c. for each kilogram of tobacco, and an ethereal oil. The former can probably be ruled out. The latter, consisting of pyridine, a phenol, and probably furfural, but very difficult of analysis, is highly poisonous, causing the symptoms commonly associated with tobacco.—*Medical Times*, Jan., 1901.

A Crusade Against Quacks in New York.

The Board of Censors of the Medical Society of the County of New York has, we learn from the *Medical Record*, entered on a crusade against quacks. As a preliminary it has issued the following circular asking the aid of the profession in New York in the war against unlicensed practitioners: "The medical laws of the State of New York provide that, before one can practise medicine a certificate of proficiency shall be obtained from the Regents of the University of the State, which is given only after a satisfactory examination. The purpose of this law is to protect the people from incompetent practitioners of medicine, and, in so far as the medical profession is concerned this purpose is accomplished. There are however, many irregular practitioners who practise in open defiance of this law, apparently without molestation. This is an incentive to irregular methods, and

can only be to the disadvantage of the community at large. It is the purpose of the Medical Society of the County of New York to begin an active crusade against these unlicensed and therefore illegal and incompetent practitioners, and we ask the co-operation of the profession and the public generally. Any information concerning unlicensed practitioners will be gratefully received by the Board of Censors and the Council of the Society, and will be considered confidential when requested." We wish the Medical Society of the County of New York all success in its public-spirited enterprise. The campaign will be watched with keen and sympathetic interest. — *Brit. Med. Journ.*, Feb. 2, 1901.

Foot Pulsation.

Crispino (*Rif. Med.*, December 19th to 22nd, 1900) has examined the phenomena of foot pulsation in the crossed leg. By means of a simple lever he registered graphically every pulsation of the swinging foot, and such a register he calls a podogram. The pulsation, which is physiological, is not purely sphygmnic but sphygmico-plethysmographic. In the healthy young adult the podograph shows three distinct elevations: (1) A sharp, sudden elevation, with fairly rapid unbroken descent to the original level, lasting about nine-twentieths of the whole period; this is due to the systolic rush of blood and increased volume of the calf; (2) a shorter and much less elevated rise, reflected from the closure of the aortic valves; (3) a small and almost insignificant rise due to a secondary wave of elasticity. This foot pulsation is less marked in children, in emaciated subjects, in pregnant women with oedema, and in obese people. The reason is mainly a mechanical one. The author has further examined the podographs of healthy old people and of people suffering from various forms of heart disease. In healthy old people one of the chief differences is the much greater similarity of their podographs to radial sphygmographs of the same, whereas in young adults there is considerable difference between their sphygmographic and podographic tracings. In mitral insufficiency the podogram was diastolic, with small and slow ascent and a rapid descent for the primary elevation; the secondary elevations were small and irregular. Tracings in mitral stenosis and in aortic disease show such differing characteristics, as one would expect, recalling the ordinary sphygmographic appearances in such cases. The author gives various podographs and drawings of the apparatus used. — *Brit. Med. Journ.*, Jan. 19, 1901.

Intracranial Removal of the Gasserian Ganglion without Ligature of the Middle Meningeal Artery.

Dollinger (*Centralbl. f. Chir.*, No. 45, 1900) has been convinced by the results of anatomical investigations, and also of five operations on the living subject, that it is possible to remove the Gasserian ganglion without wounding the middle meningeal artery. The duration of the operation may consequently be much lessened and serious complications avoided. On examination of fifty normal crania, the author found that in 59 per cent. of these specimens the foramen spinosum was situated so far behind the foramen ovale that this latter orifice and the third division of the fifth nerve could be reached without any serious interference with the middle meningeal artery, if the dura mater were separated from the base of the cranium directly from without inwards. In 35 per cent of his specimens he found that it would be necessary to penetrate from before backwards, as well as from without inwards. In 94 per cent. of cases, therefore, it will be found possible to expose and remove the Gasserian ganglion without ligature of the middle meningeal. The foramen rotundum, it is pointed out, is still further in advance of the orifice through which the artery passes into the cranial cavity. The author states that in the intracranial operation for the removal of the Gasserian ganglion, hæmorrhage, usually slight, but in some few instances, very severe, may arise from the soft parts, from emissary veins, and the veins of the dura mater. In a little more than 50 per cent. of crania the anterior branch of the middle meningeal artery as it crosses the antero-inferior angle of the parietal bone lies in a closed canal, and not in a groove. The bleeding consequent on the unavoidable laceration of this branch in such condition is not usually, the author asserts, very profuse or likely to give trouble.—*Brit. Med. Journ.*, Feb. 2, '01.

A Case of Prolonged Sleep of Seven Months' Duration, Caused by Tumor of the Hypophysis.

F. Soca (*Nouvelle Iconographie de la Salpêtrière* 13th year, No. 2, March-April, 1900, p 101, Cited in *Periscope of Jour. Ment. and nerv. Diseases*) reports a case of this condition in a young woman 18 years old with no history of Syphilis. The somnolency supervened upon a sudden attack of unconsciousness. Blindness developed rapidly, double optic atrophy and dilated pupils not reacting to light were observed on ophthalmological examination. Inability to walk and incessant vomiting of a cerebral character soon developed. Following this a tendency to sleep was the chief symptom, and lasted for seven months. She could only be roused with difficulty to take nourish-

ment. At the necropsy the base of the brain was found to be held firmly to the skull by a new growth. The growth covered the sella turcica and was in the tract of the first pair of cranial nerves. The olfactory peduncles were spread out but otherwise unchanged. The optic nerves were adherent to the tumor, and posteriorly the growth involved the third and fourth pair of nerves, but there were no adhesions. The neoplasm was sarcomatous. There were no symptoms of compression. This was explained by the soft character of the growth.

It is interesting in this connection to recall the studies of Brooks on acromegalia. He maintained that the "so-called sarcomata of the hypophysis in acromegalia are lacking in two rather prominent traits of Sarcoma . . . metastasis and comparatively rapid growth." He is of the opinion that the apparent sarcomatous processes have been misinterpreted. He cites a case of McAlpin's in which there was extensive sarcomatous involvement of the hypophysis with no symptoms whatever of acromegalia. Brooks further maintains that the process is a simple hyperplasia—a true adenoma. In this case of Soca's we are not led to refer from the review that there were symptoms of acromegalia present. Such extensive sarcomatous involvement as is reported without acromegalia would at least seem to bear out Brooks' contention. However, as is seen, aside from disturbances that may be produced by destruction or alterations in the function of the hypophysis, enlargements of any character are capable of producing most profound pathological changes by mechanical pressure, because of the proximity of important structures.—*New Eng. Med. Gazette*, Jan. 1901.

A Scheme for Research work in Mental Pathology in the United States.

A committee of the New York Neurological Society, with Dr. Frederick Peterson as President, was recently appointed by the President of the New York Commission in Lunacy "to offer suggestions as to a scheme of scientific study of mental diseases in connexion with the State's hospitals for the insane," and its report has now appeared. The signatories include well-known names in neurological and psychological medicine such as Dr. Frederick Peterson, Dr. B. Sachs, Professor Charles Dana, Professor Graeme Hammond, Dr. Joseph Collis, Professor Allen Starr, and others, and their recommendations are appended as follows:—

"1. It is to the interests of the State that original research work should be carried on in relation to insanity in order that the science should be advanced and better methods of prevention, treatment, and cure discovered.

2. There should be one central laboratory in the State, wherein the energies of the best scientific men in the various departments of medicine relating to insanity should be devoted wholly to the prosecution of original research.

3. Such a laboratory, combining the labours of well-qualified workers in general pathology, neuro-pathology, psychology, chemistry, and anthropology, be able to produce from year to year results invaluable in advancing the knowledge of the treatment and cure of mental disorders."

4. Recommendation 4 refers to the need of having a special medical officer to conduct the necropsies at every local asylum.

5. The central laboratory should be freely open to any qualified scientific man for the prosecution of original research work under the direction of the laboratory experts.

6. The central laboratory should be part of a reception hospital for the insane situated at Manhattan Island."

These propositions accord in the main with the views entertained in Great Britain by many leading alienists and neurologists, and which have resulted in the establishment of the London County Council's Pathological Research Laboratory at Claybury so long back as 1895.—*Lancet*, Feb. 2, 1901.

The Action of Tesla Currents.

Loewy and Toby Cohn (*Berl. klin. Woch.*, August 20th, 1900) have repeated d'Arsonval's experiments with the very rapidly alternating currents of high potential (up to a million volts), which are called after Tesla, their discoverer. The oxygen absorbed, and the CO₂ expired were taken as the measure of the rapidity of metabolism. The subject was seated in a large solenoid or cage, and expired through a gasometer. The respiratory changes were determined in eight healthy men; first, under normal conditions; and, secondly, while subjected to the Tesla currents. The current was applied for 10 to 15 minutes before the air was collected for analysis, and was then continued to the end of the experiment. In only two of the eight was there an increase of metabolism above normal physiological limits, and in these the experiments were vitiated by accidental factors, which might have accounted for the metabolic rise. In two the metabolic processes were increased, but not beyond physiological limits; the rise was probably due to the psychical impression caused by the apparatus, since when this was excluded as far as possible no increase of metabolism was observed. In two others the currents had no effect on metabolism, although conjoined with the influence of

psychical impressions. D'Arsonval's statement that the Tesla currents stimulate metabolism was therefore not confirmed.—Cohn (*ibid.*) continued the experiments on 76 patients suffering from various functional neuroses and disorders of nutrition. The currents were in some cases applied to the patient seated within the solenoid, sometimes from a small solenoid directly to the part to be treated. The treatment was continued for a few days in some cases, and for three or four months in others. The current was applied every day or every other day. Suggestion was excluded as much as possible, since a hypnotic action appeared to be inexplicably frequent. Of the 76 patients treated, 4 were practically cured, 18 were improved, and 16 were unrelieved; the remainder did not persevere with the treatment. Thus, only 22 were really benefited, and the writer concludes that "Teslisation," though it often relieves symptoms of functional origin, especially insomnia, does not effect any organic changes which can be detected by physical signs, and has no action on the blood pressure or metabolism, either in health or disease. Even when there is a subjective improvement in the patient, it is at present impossible to exclude all sources of error, such as the action of suggestion and of the ozone which is produced by the currents.—*Brit. Med. Journ.*, Feb. 2, 1901.

Alcohol a Poison, Not a Food.

"I hold," says Dr. Howard S. Anders, in the *Philadelphia Medical Journal*, "that our modern knowledge of alcohol in the human body justifies the belief that in health it is never a food in any sense, be the quantity large or small, but always a poison, biologically or physiologically speaking; that in disease it is neither a food nor a poison, but may be a suitable and helpful drug, and that neither in the last analysis nor fullest synthesis, in health or disease is it a 'partial food,' in small, so-called moderate or excessive quantities. Let us call it what it rightfully is, a *drug*, and not a *drink*, a *narcotic*, and not a *tonic*. It may take a generation or two before this view becomes as universal as one might wish, but I hope and believe that then it will so become."

More radical still is the position taken by Kessowitz (*Deutsche Med. Woch.*, Aug. 9-16-23, 1900), who sweepingly denounces the employment of alcohol and affirms that for a period of ten years, he has administered none of it in his practice. Having formerly been in the habit of giving it freely, he considers himself qualified to draw conclusions, and is of the opinion that it deserves no place in the therapeutic list. It is useless as a food, for it is essentially a protoplasmic

poison and therefore incapable of entering into combination in the body, while the belief that through its oxidation it is capable of effecting economy of the body's fat or albumin stores rests on an error of observation. It is true that on an alcohol diet less nitrogen is excreted, but this does not mean that a saving of the body tissues is going on; the fact is simply that owing to its destructive action the alcohol inhibits metabolism, the damaged protoplasm being less able to take part in the vital processes, while at the same time through its benumbing the higher centers the organs innervated by them are less able to functionate normally and oxidation is less active. In view of the numerous other antipyretics and stimulants at command, there seems no valid reasons for employing an agent like this, the deleterious action of which on the heart muscle, kidneys, liver, arteries and nervous system is so universally admitted. As a true fuel saver in febrile and asthenic states, sugar, which may be readily administered in the form of fruit juices, ices, sweetened lemonades, etc., answers every requirement and experiments with the ergograph have shown that after its absorption a rapid and very noteworthy improvement in muscular vigor and tone takes place which, of course, includes the heart action. As a stimulant camphor surpasses alcohol in its promptness of action and the complete absence of all disagreeable by-effects. It will be a real advance when it is universally recognized that no substance can play the double role of foodstuff and poison, and that only toxic and never nutritive properties are to be ascribed to alcohol. —*Medical Times*, Jan., 1901.

Action of Mucus on the Organism.

Mucus is generally regarded as a harmless material, though if formed in superabundance in the air-passages it may become troublesome by inducing cough or by interfering with due interchange of gases in respiration. The important rôle now assigned to auto-infection has led M. Charrin and M. Moutssu to investigate the effects of the introduction of mucus into the various media of the organism. The results which they obtained have proved unexpected and they have embodied them in a paper read before the French Académie des Sciences on Jan. 21st. To obtain mucus in sufficient quantity for the purpose of experiment and in a state of relative purity they scraped lightly the surface of the trachea and larger bronchi of horses, oxen, and large dogs. The material collected was agitated for about a quarter of an hour with water containing 8 per cent. of common salt, or with about a thousandth of its weight of sodium carbonate. The mixture was filtered and from 0.05 to 0.15 gramme of it per kilogramme weight

of the body was injected into the marginal vein of the ear of a rabbit; death usually ensued in the course of a minute or two, sometimes preceded by slight convulsions, nystagmus, or slight dyspnoea. When the chest was immediately opened the heart continued to beat somewhat less strongly than in other forms of death and clots rapidly formed in the right ventricle. If the clotting were prevented by the injection of leech extract death did not occur. M. Charrin and M. Moussu were hence led to conclude that vascular obstructions were produced in the nerve centres and especially in the bulb, where thromboses were found, or possibly, to emboli in different regions. The question then arose, What is the nature of this coagulating principle? The notion of the presence of a fibrin ferment suggested itself; but this view is not very tenable on the ground that fibrin ferment is easily destroyed by heat, whilst the coagulating power of mucus, especially when diluted with a weak solution of sodium carbonate, is retained even when exposed for several minutes to a temperature of boiling water. Also precipitation by alcohol, by means of which fibrin ferment is prepared, alters materially the action of mucus. It may be remarked that the dilutions of mucus are poor in leucocytes, and even when these are separated by the centrifuge the part which is freed from the leucocytes is as active in producing coagulation as that part where they have accumulated. Moreover, the coagulating substance does not dialyse or dialyses very imperfectly and slowly; it is precipitated by ammonium sulphate; and it is rendered inoperative by certain acids. The liver does not sensibly alter its properties, though coagulation seems to take place with great rapidity in the porto-hepatic region. The addition of a few drops of the dilutions of mucus to the blood of a horse *in vitro* causes coagulation to set in in the course of from two to four minutes, though such blood will often remain fluid for 20 minutes. Experiments made with mucus and obtained from other sources, as from the bladder and the surface of the intestine have appeared to these observers to exert a similar coagulating action on the blood, and they propose to continue and to vary their experiments.—*Lancet*, Feb. 2, 1901.

Heart Massage after Death from Chloroform.

Starting from the fact that after death the tissues lose their irritability within certain but varying times, Prus (*Wien. klin. Woch.*, October, 1900) undertook a number of experiments upon dogs to demonstrate that should certain stimuli be applied before this function disappeared the vital organs would again resume their usual conditions. He was able by *post-mortem* exposure and massage of the heart to produce cardiac contractions and rhythmic respirations, which continued for a few hours. The method was later applied

upon a suicide, some two hours after death. The heart contracted, but only feebly and soon stopped. Another application is reported by Kjer Peterson (*Hospitalstidende*, B. viii, No. 47, 1900), of the Praesto Hospital, Naestved, Denmark. During an operation by Maag, a patient, aged 37, died from CHCl_3 . Artificial respiration and all the usual remedies, including tongue traction had been tried without avail. Tracheotomy was performed and air blown into the lungs, but the patient remained cyanotic, pulseless, and without any attempt at respiration. As a last resort heart massage was practised. The anterior thoracic wall and the sternum were reflected, and without opening the pericardium the heart was grasped by the hand of the operator, compressed, and allowed to dilate. No contractions of the walls could be at first felt, but after a few compressions the rhythm of the heart was gradually resumed. At the same time air was forcibly blown into the lungs, and the thorax pressed to imitate expiration. When the heart had been massaged for thirty minutes a respiratory gasp occurred. It was a little time however before the patient respired unaided, and then only at intervals. The operation had been commenced at 8 A.M., but it was not until 11.30 A.M. that the patient made any distinct respiratory efforts. Until 12 noon the heart contracted vigorously, the respirations were almost normal, the pupils contracted and dilated with inspiration and expiration. The radial pulse was strong and regular, and the jaws were tightly clenched. The several wounds were at once sutured and dressed and the patient conveyed to his bed. For twenty minutes breathing proceeded satisfactorily, but quite suddenly it became embarrassed and quickly stopped. Air inhalations were again given and continued for eight hours, together with artificial respiration, electricity to the phrenics, ether and camphor injections, and saline infusions, but no result was obtained. The heart, however, continued beating until 8 P.M., when it became gradually feebler and soon stopped. The rectal temperature at 4 P.M., was 36.9°C ., at 5 P.M., 35°C ., and 7.30 P.M., 34.6°C . The pupils slowly contracted during the last hours. A necropsy was held, and the viscera were found healthy. Peterson observes that in air insufflation care must be taken to avoid any leakage *via* the oesophagus, as it may cause meteorism and the dilated intestines press upon the diaphragm, impeding all respiratory movements. In this case the abdominal circumference was gradually increased, and so the un-practised air administration may have assisted the respiratory stoppage. An ordinary pair of blow bellows was also used for the purpose because of their nearness to hand, but a tampon catheter would have been much better. During resection of the sternum, etc., special care has to be taken to avoid opening the pleura.—*Brit. Med. Journ.*, Jan. 19, 1901.

CLINICAL RECORD.

Foreign.

CRATÆGUS OXYACANTHA IN HEART DISEASES.

BY DR. HALBERT.

CASE I.—Aortic Regurgitation. The patient, a man thirty years of age, presented himself at my clinic a little more than a year ago. Without detailing the physical diagnostic features, I may say that I defined his case as a typical aortic regurgitation. From symptoms and examination I was convinced that a progressive sclerosis had affected the segments, permitting them to curl up and cause the regurgitation. This had evidently come from some prolonged and not a sudden strain upon the heart. He was a driver for a grocery firm, and his vocation kept him on the jump. Evidently alcoholism had been the early cause, and he was not free from syphilitic suspicion.

With the aortic regurgitation there was a slight mitral murmur, showing that the sclerosis had disseminated and that probably a previous dilatation had existed some time before the heart muscle fully compensated.

At the time of my first examination the cardiac symptoms were not extreme. He really came for stomach relief, and his complaint was mostly in the form of gastralgia. In getting his symptoms I was satisfied that *Argentum nit.* was his remedy, for the following reasons:—First, a neurotic temperament with a specific and alcoholic history. Second, a violent belching of gas, worse at midnight. Third, a peculiar heavy lump in the stomach, worse at midnight. Fourth, the paroxysmal gastralgia, not relieved by pressure. Fifth, mucopurulent discharge from the bowels. Sixth, a paralytic weakness of the lower limbs, with tremulous choreic movements. These symptoms, together with the degenerative and debilitating tendency, confirmed my satisfaction with the remedy. For this picture of the case the prescription was made.

As the weeks passed by the improvement was very pronounced. The attending symptoms gradually began to disappear, and in the meantime the cardiac features became less severe. He gained in flesh and strength, and his power of endurance almost reached the normal point. He began to feel that he was well. Thus, as the symptomatology cleared up, his heart improved—truly a confirmation of our theory of practice. But all of a sudden he suffered a serious attack with anginal symptoms—dyspnoea, palpitation, pain and all the extreme cardiac symptoms appeared. During this, severe dilatation occurred; the regurgitant sounds became more pronounced, the apex beat was displaced decidedly, and it took the best of care to get him through the dangerous features of the attack. Now our indicated remedy did no good, and compensatory hypertrophy failed decidedly. Then he was given *cratægus tincture*, five-drop doses every three hours. After a time some improvement was observed. The remedy was continued faithfully, and soon he was out; a little later he went

to business, but he reported regularly. The remedy was continued for several months regularly; then it was given intermittently for months longer. To-day he is well, and *cratægus* has cured him. I do not mean to say that the heart is normal, but the dilatation has been overcome, the heart muscle has formed a safe compensatory hypertrophy, the rhythm is more perfect, the heart sounds are more natural, he is able to endure considerable strain, the systemic symptoms are better, and the heart will last him as long as he gives it reasonable care.

CASE II.—Aortic Regurgitation. This is another and similar case, though occurring in a young man twenty years of age. In reality, the typical cardiac involvement began much earlier, and was allowed to augment through the carelessness of a physician who said the boy would outgrow it. He was addicted to bicycle riding, and during a summer in Switzerland he tried to ride many hills. He was seized with a severe attack of cardiac dilatation and nearly lost his life. His physician there evidently used *digitalis* to an extreme, and though he rallied from the attack compensation was not perfect. Soon after a physician gave him *apocynum* and, as it helped him, it was continued for some time with success. It seemed to be his remedy, but he evidently used it until the physiological effect made him worse.

During another attack this summer I was called. I never saw such a case in my life. The precordium was bulging, the apex beat was down to the outer border of the sixth rib, the right heart was greatly enlarged, epigastric pulsation was pronounced, the whole chest wall gave a violent and heaving impulse, both aortic and mitral regurgitation were extreme, the dyspnea was terrible to behold, and cyanosis was evident. I had no idea we could hold him twenty-four hours. *Strychnia*, *digitalis*, and nearly every remedy and adjuvant I could think of, for immediate relief, were used with only temporary effect. He continued with a little intermittent improvement for several days, and then I determined to use *cratægus* and hold to it, as I had no hope of recovery. Five-drop doses were given four times daily, and this was gradually increased to eight drops. There were no decided changes for a few days, though the heart's action became more quiet. We kept him in bed, and took the best of care that there should be no physical exertion. At the end of two weeks the improvement was quite pronounced. It was plainly evident that the cardiac muscle was gradually compensating under the remedial action of *cratægus*.

From some accountable carelessness he contracted a severe cold, and a slight pneumonia intervened. The remedies were now changed, according to the indications of the acute symptoms, and we nursed him through the affliction, though we almost lost hope. About this time the cardiac tension and irritability were most extreme, but the heart muscle behaved very well. He was given *convallaria* tincture five-drop doses, four times daily, in conjunction with his other remedies. This acted well for a time, but as the pneumonia was relieved the cardiac muscle again became weak, and there were the old signs of failing compensation. Again I prescribed *cratægus* and watched

him carefully. For weeks we observed a gradual recovery; he was then sent to the country, and the remedy was persistently continued. Not hearing from him for several months I supposed he had called another physician. A few days ago, however, I met him on the street; he said he was "all right" and was attending to business. He claimed that his heart was causing him little trouble, but he was using the remedy continually. If I could only present this one case to you my statement would be amply confirmed.

CASE III.—Mitral Regurgitation. To make this report brief I will say that this patient was a lady forty-five years old; cardiac disturbances were inherited, inasmuch as her father and mother had died with this malady. She was a regular patient of mine, and I had struggled for years with her disease, never having been able to do more than palliate. She had drifted from one doctor to another, and had exhausted every effort and most of her means for relief which did not come. Strychnia, strophanthus and digitalis had been mostly used by the other physicians.

Finally the patient came to me again about two years ago. The heart had now become greatly enlarged, compensation had failed, and all the extreme characteristic symptoms were present. I sent her home and told her to go to bed and get a nurse. I then began a systematic course of treatment. In conjunction with other remedies *crataegus* tincture was prescribed as in the previous cases reported; it was continued for a long time. Gradually improvement was apparent. After a while she was able to be about. She was sent to a warmer climate for the winter. She returned last spring apparently well, though the heart was not as it should be. She now became extremely careless, as she believed herself well; she overworked and was accustomed to go up and down stairs without caution. A severe fright brought on a relapse, and after a long course of illness she died.

While, in this case, there was no cure, there certainly was an evident improvement under the use of *crataegus*. Had she been more considerate of herself and had other conditions been more favourable, I certainly would have expected better results.

In commenting upon these cases I would make the following statements:—

1st.—I do not wish to intimate that *crataegus* is the only remedy in the treatment of cardiac diseases, or that it should be used in all cases.

2nd.—The particular indication for its use is found in the symp-

toms defining the failure of compensation. In physiological doses given to the healthy it will create these symptoms accurately.

3rd.—The reported failures in its use by other physicians do not, to my knowledge, represent the consensus of opinion gained by those who have given it a long and studious trial.

4th.—In order to obtain good results it must be used for some time. It is best employed in tincture form, and does not interfere with other remedies." *Monthly Homœopathic Review*, Feb. 1901.

CHELIDONIUM IN WHOOPING-COUGH.

BY DR. JEAN DEWEE.

A boy of four years had been suffering for seven months from whooping-cough; the little patient had a cachectic appearance, a yellowish gray complexion and was emaciated to a mere skeleton. Besides the whooping-cough, the child had a general bronchial catarrh and the broncho tracheal glands were enormously swollen. At every attack of the cough there followed vomiting of bile and of food; besides this, the liver was swollen and there was an obstinate constipation. *Chelidonium* was plainly indicated and the patient received it in the sixth dilution. In five days the irritation causing the cough was removed so entirely that the parents were frightened and did not dare to continue the medicine. At the conclusion of the second week the child was fully recovered.

Since then the child had every winter, especially on wet days, some attacks of congestion of the glands of the chest, accompanied with rattling and a cough resembling whooping-cough, but a few doses of *Chelidonium* always sufficed to remove the slight attack.

Chelidonium was well indicated in the case; for it has "a spasmodic cough which wakes up the child by night, the affection extending to the bronchia and attended with constriction of the chest." A second indication was the congestion of the liver; although this is not one of the usual symptoms of whooping-cough, it not unfrequently attends long-continued cases of the disease, as the lungs in part become emphysematous and considerably impair the circulation. The physiological consequence of the congestion of the liver appeared in this case in the constipation and in the yellowish, icteric complexion of the patient.—*Homœopathic Recorder*, January 15, 1901.

Gleanings from Contemporary Literature.

A LECTURE ON PLAGUE.

Delivered at the London Hospital on Nov. 22nd, 1900.

By J. MITFORD ATKINSON, M.B., Lond.,

PRINCIPAL CIVIL MEDICAL OFFICER HONG-KONG.

LADIES AND GENTLEMEN,—I appear before you this afternoon at the request of the College Board that has done me the honour of inviting me to give you some of my experiences of this now widespread disease, plague. I would incidentally mention that it is 22 years since I was in this theatre as a student. London Hospital men wander far and wide, and it has been my fate to spend 13 years in the Far East, during which time I have practically had the management of three epidemics of this disease. During these outbreaks we have had the services of a staff of nursing sisters, no fewer than nine of whom hailed from the London Hospital. I feel it my duty as well as a privilege to pay a tribute in the college attached to this hospital to the noble services rendered by these ladies, in the performance of whose duties two unfortunately lost their lives.

I have been requested to speak to you on the diagnosis of plague and the measures necessary to prevent its extension. Plague may be defined as an acute infectious febrile disease caused by the introduction into the system of a specific bacillus. In order to diagnose the disease a knowledge of the symptoms and post-mortem appearances is necessary.

SYMPTOMS.

The disease commences suddenly, without prodroma, with a rigor, followed quickly by great prostration, fever, and marked pain at the place where the bubo subsequently appears. After the onset there are headache, great thirst, vomiting, diarrhoea, marked weakness, and, as a rule, intense mental depression. The skin is hot and dry and occasionally jaundiced. The facies is characteristic. The countenance is drawn, the conjunctivæ are injected, and the eyes are sunken. The patient presents a dull, heavy, stupefied look. Sometimes this is replaced by an expression of terror. The tongue is swollen, red, and coated with a greyish white fur. Occasionally the disease is ushered in with violent delirium, the patient being sometimes quite maniacal. At other times the patients are quiet and indifferent to their surroundings owing to a deadening of the mental faculties. Then appear the buboes or enlarged lymphatic glands, to which character the name "bubonic plague" is due. These are the most constant and characteristic signs of plague and they appear at any time in the first five days. The fever is generally high—from 103° to 105° F.—at the onset, lasting from six to 10 days and reaching its acme from the 3rd to the fifth day. Gradually then it falls to the normal. After the first stage there is often a secondary rise due to suppuration. Occasionally we meet with petechiæ or pustular eruptions and carbuncular affections of the skin. These latter begin with ecchymoses, which increase in size and become covered with vesicles, the surrounding skin being swollen and brawny, due to the effusion of inflammatory serum, a central slough often forms which separates, leaving a gangrenous ulcer.

Buboes.—With reference to the buboes or glandular swellings in 73 per cent. of the cases these appear varying from the size of a pigeon's egg to that of one's fist. In the remaining 27 per cent. the glandular swellings are much smaller, varying from the size of a pea to that of a bean. These smaller lesions occur most frequently towards the end of an epidemic when the symptoms generally are milder. These buboes are accompanied by a

painful peri-glandular swelling which is so painful that on the least pressure the patient winces and cries out. The most frequent sites of the buboes are the groin, the axilla, the neck, and the submaxillary region. The relative frequency is as follows: in 60 per cent. they occur in the groin, in 16 per cent. in the axilla, in 15 per cent. in the neck, in 1·5 per cent. in the submaxillary region, and in exceptional cases they also appear in the elbow and popliteal space. In the groin the femoral glands are those most frequently affected. The swelling is rapid and accompanied by so much pain that the patient lies with his thigh flexed and abducted, there is inflammation of the surrounding peri-glandular connective tissue, the skin over the swelling is red and oedematous, very often a bleb forms on the surface, and in 90 per cent. of the cases the bubo suppurates. In addition to these changes in the external glands the internal lymphatic glands are frequently affected, more especially the mesenteric.

To particularise, one may say in regard to the alimentary tract that the lips are dry, the tongue at the onset is swollen and red and coated with a greyish-white fur; usually on the second or third day it has become dry and brown. This brown appearance, especially amongst the Chinese, is very characteristic. The mucous membrane of the pharynx is red and the tonsils are often congested. The appetite is diminished and there are frequent vomiting and intense thirst. Diarrhoea is common at the onset as well as in the later stages; during the fever constipation is the rule.

Respiratory tract.—As a rule there are no symptoms pointing to this tract, but there is occasionally a painful dry cough with signs of dry pleurisy. I am referring to the ordinary bubonic type of the disease.

Cardiac.—In severe cases there is evidence of implication of the heart muscle; the first sound is prolonged, the pulse is rapid and soon becomes soft and compressible, and as the end approaches it is very irregular.

Urinary system.—The secretion of the urine is frequently diminished or altogether suppressed at the onset. In 95 per cent. of the cases in the epidemic in 1896 we found albumin to be present at the commencement of the disease, but this disappears with the decline of the fever.

Nervous symptoms.—These are very marked and consist of deafness, distressing sleeplessness, muscular twitchings, and either delirium or apathic listlessness merging into coma. Pregnant women in many cases abort. Convalescence in favourable cases commences with the decline of the fever at the end of the second week, but it is always long and very often much delayed by suppuration.

Mortality.—There is no disease with such a high mortality. Amongst the Chinese not treated in the hospital the mortality was 90 per cent. Amongst those treated in the hospital it varied in different epidemics from 73 to 88 per cent. Of the Europeans attacked the mortality is much less, averaging from 40 to 50 per cent. During the height of an epidemic the cases are speedily fatal, death often taking place from quite unexpected collapse. At the end of an epidemic the cases are much milder in degree, so that we find the mortality of 90 per cent. at the beginning reduced to 45 per cent. at the close.

POST-MORTEM APPEARANCES.

To diagnose the disease it is necessary, as I have stated, to have a knowledge of the post-mortem appearances, as the first case may be met with in the cadaver. There is no marked emaciation unless death occurs late in the disease, or from some secondary cause such as long-continued suppuration. Rigor mortis is not well marked. The expression of the countenance is usually calm. On the skin there are petechiae occasionally found and carbuncular swellings; these show hæmorrhages and infiltration into the subcutaneous tissue. With regard to the brain the cerebral membranes are always congested and oedematous and in most cases clouded;

there are small ecchymoses here and there. In the brain substance there is no marked change. As to the chest, in the pleura are small hæmorrhages, with some moderate effusion into the pleural cavities; the mediastinal glands are sometimes enlarged and the lungs are congested and very cedematous, the lower lobes especially so. There is occasionally pneumonic infiltration. The bronchial glands are sometimes enlarged. The pericardial area presents punctiform ecchymoses, the right side of the heart is generally distended with blood, and the heart muscle is pale and flabby, the parenchyma being clouded or in a state of fatty degeneration. As to the abdomen, the omentum and peritoneum present small or large extravasations of blood; these are sometimes very extensive. The mesenteric and retro-peritoneal glands are in nearly all cases enlarged and they present a bluish-red appearance. Occasionally, in severe cases, extensive hæmorrhages can be traced from the crural canal along the lymphatics of the pelvis to the perirenal connective tissue. The spleen is enlarged always to twice or even four times its usual size; it is soft and hyperæmic. The liver also is enlarged; there may be extravasations of blood under its capsule, the parenchyma is clouded, and in those cases in which there has been jaundice the organ is of a greyish-yellow colour. The stomach is often contracted; the mucous membrane is hyperæmic and is thickly coated with mucus and studded with small or large hæmorrhages. The intestines present the same appearances; in addition, the solitary glands are hyperæmic and Peyer's patches are enlarged and occasionally present hæmorrhages. The kidneys are enlarged and congested, with small ecchymoses under the capsule. Small hæmorrhages are found in the mucous membrane of the pelvis and coagula may be seen plugging the calices. The urinary bladder presents punctiform hæmorrhages in the mucous membrane and the urine occasionally contains blood. With regard to the glands, in the external lymphatics or buboes the changes are much more marked than they are in the internal lymphatics. The buboes are swollen lymphatic glands with the surrounding connective tissue cedematous and infiltrated with blood. The glands are red or bluish-red and are frequently studded with purulent foci: they often contain hæmorrhagic extravasations. In severe cases the glands are matted together to form one huge boggy mass which may extend up the crural canal to the pelvis. In severe cases the iliac and lumbar glands have been affected, so that there may be a chain of enlarged glands extending up to the diaphragm, and hæmorrhages into and around these glands are frequently found.

To sum up, the post-mortem changes met with in this disease are as follows: characteristic inflammatory swellings of the external and internal lymphatic glands, especially of the mesenteric glands, accompanied by enlargement of the spleen, by inflammatory changes in the structure of the liver, kidneys, and heart, by inflammation of the cerebral membranes, and by the production of diffuse small punctiform hæmorrhages.

VARIETIES OF PLAGUE.

The varieties of the disease are three: the bubonic, the pneumonic and the gastro-intestinal.

1. *Bubonic*.—With regard to this variety, it is the one which I have been describing. 70 per cent. of the cases come under this heading. Infection occurs through the skin.

2. *Pneumonic*.—Fatal as is the bubonic variety, the pneumonic is still more so; indeed, nearly all who are attacked by it die. It is induced in animals by applying the bacilli or the sputum of a pneumonic case to the mucous membrane of the nostrils of, say, guinea-pigs, by means of a brush. The sputum of patients attacked by this variety presents almost a pure culture of plague bacilli. Infection occurs by means of the air-passages, and it was from this form that the two sisters in the Government Civil

Hospital at Hong-Kong died in the epidemic of 1898. The onset is marked by a rigor, attended by cough and some dyspnoea with slight fever. The temperature soon rises to 103° F. or higher, and in a few hours the patient commences to spit up a quantity of thin blood-stained sputum. The dyspnoea rapidly becomes more marked, there is much cardiac depression, the pulse is rapid and compressible, and there are extreme restlessness, want of sleep, and early delirium; the auscultatory signs are those of catarrhal pneumonia. The disease in this form runs a very rapid course and is almost invariably fatal within three days.

3. *Gastro-intestinal*.—This variety, like the pneumonic, has no external buboes and the cases are, as a rule, rapidly fatal. Post mortem the changes already described in the mesenteric and retro-peritoneal glands are the most constant; the solitary glands are also enlarged and inflamed and the mucous membrane of the intestines is thickly coated with mucus and studded with small hæmorrhages. In 21 fatal cases of this variety in the epidemic of 1896 plague bacilli were found in the fæces.

BACTERIOLOGY.

It was at Hong-Kong in 1894 that Kitasato and Yersin discovered the bacillus in the buboes and organs of those who had died from the disease and also in the blood of patients who were suffering from the disease. That this bacillus is the cause of the disease is now universally held, the reasons being: (1) the presence of the bacillus in the blood and organs of a person suffering from, or who has died from, the disease; (2) that if a culture of the bacillus obtained from one suffering from the disease be inoculated into a susceptible animal this animal contracts the disease and dies; (3) the bacillus can be obtained from the spleen and other organs of the infected animal; and lastly, (4) the bacillus thus obtained will infect other susceptible animals. The distinctive micro-organism is found in fresh bodies in the spleen and buboes in great numbers, in smaller numbers in the affected lymphatic glands, in the heart, lungs, liver, and kidneys, in the walls of the stomach, in the intestines, and in the blood; in the last named it is also found in the interior of the blood corpuscles. It is likewise to be detected in the fæces, in the urine, in the vomit, and in the saliva. The bacillus is a short thick rod with rounded ends. On an average it is about one millimetre in length and 0.3 μ in breadth. It is stained by basic aniline dyes, the ends of the bacillus taking the stain more deeply than the centre, thus presenting a bipolar appearance. It is not stained by Gram's method. Examined in media kept at 37° C., which is that at which it thrives best, it is motile. Spore formation has not been observed. In some specimens the appearance of a capsule can be made out. To find the bacillus, a small quantity of blood is obtained by puncturing the finger or lobe of the ear, after carefully washing the skin with soap and water and afterwards with a solution of corrosive sublimate. The blood is then spread on glass slides and dried and stained with some aniline dye, carbol fuchsin by preference. Blood obtained by puncturing the buboes or glandular swellings nearly always contains the bacilli in large numbers.

In 1896, out of 273 cases treated in the hospital, in 221 the presence of the bacilli in small number was found in the blood microscopically. As a rule only four or five in any one field of the microscope are found. If the bacilli are not found microscopically a more exact opinion is obtained by culture experiments on animals. The most favourable culture medium for this growth in Hong-Kong was found by Wilson to be a 2 per cent. alkaline solution of peptonised bouillon containing 1 per cent. of gelatin. After injection the bouillon remains clear and transparent; the bacilli grow on the surface in the form of a slight whitish clot. The fluid remains clear if undisturbed, but the least movement causes the growth to sink to the bottom of the tube, or for a time the fluid appears cloudy. The urine or

the blood may also be examined on agar plates. If the bacilli are present small round greyish-white colonies appear within 24 hours. To make the diagnosis still more precise inoculations of the blood into a susceptible animal, such as the rat, the mouse, the guinea-pig, the rabbit, the pig, or the monkey should be made. The mouse or the guinea-pig is the animal which is most suitable. To communicate the disease to either it is only necessary to prick the thigh with a needle which has been dipped into the culture. The animal refuses food, it staggers, the respirations become hurried, and it dies, in from 36 to 48 hours. It is essential to use a recent culture, otherwise the virulence is lowered. The characteristic post-mortem changes are found in the animal—e.g., at the site of inoculation there is inflammatory oedema, the lymphatic glands are enlarged, the spleen is enlarged and congested, and plague bacilli can be obtained from the spleen, the liver, and the glands.

Plague bacilli are also present in profusion in the sputum of pneumonic patients. In examining the pneumonic sputum advantage is taken of the fact that plague bacilli grow at a much lower temperature than normal microbes. In order to examine sputum for the presence of these bacilli the sputum is first diluted with a small quantity of boiled water; several tubes of bouillon are fertilised with this diluted sputum and are exposed to a temperature not higher than 23° C. At this temperature the pneumococci and streptococci will not grow. The plague bacilli will develop and in two or three days plague colonies will be seen. In order to obtain cultures in a pure state fresh tubes of bouillon should be inoculated. The introduction of pure cultures into the stomach, either by mixing them with food or by giving them with the stomach-tube, is always fatal to rats, guinea-pigs, and rabbits and the same result occurs if fragments of the organs of animals dead from the disease are used. The post-mortem changes in the mesenteric glands and intestinal follicles are more marked in these cases than they are in the cases of those animals which have been killed by subcutaneous injection also the external glands are much less swollen. Wilson found at Hong-Kong that guinea-pigs and monkeys fed with pure cultures died from the disease. A pig fed with the spleen of a man who had died from plague succumbed to this disease in three weeks. It is found then by microscopical and bacteriological examination that plague is a disease in which the blood, the organs, the saliva, the urine, and the fæces of those affected with, or who have died from it, contain a specific bacillus, pure cultures of which inoculated into various animals produce in them the same disease. Hence its infectivity, a point which I cannot too strongly impress upon you. Medical men recognise this, but there is a tendency on the part of students to dwell more on the changes in the organs and on the pathognomonic symptoms of a disease. Bacilli have been demonstrated in the saliva and fæces of patients five days after the first onset of the fever; in blood obtained by puncturing the connective tissue of the bubonic swellings and in urine plague bacilli have also been detected from four to six weeks after the onset of the disease. Mice, guinea-pigs, and rabbits when inoculated by cultures attenuated either by cultivation through several generations in artificial media or by heat are gradually rendered immune against inoculation with virulent cultures; from this arises the treatment by antitoxic and preventive serums. Serial inoculation diminishes or destroys the virulence of the bacillus; this may account for the spontaneous subsidence of the disease, also for the smaller death-rate at the end of an epidemic.

DIFFERENTIAL DIAGNOSIS.

The diseases for which plague may be mistaken are typhoid fever, typhus fever, and splenic fever, and in the pneumonic variety it may at its onset be mistaken for influenza. It is distinguished from typhoid fever by its

sudden onset, by the absence of the rash and the abdominal symptoms, and in a few days by the appearance of the bubo. Typhus fever has a longer fever stage—viz., 14 days. The difficulties chiefly occur in the severe cases without buboes and in the mild cases with slightly enlarged glands which simulate adenitis, the so-called *pestis minor*, or *pestis ambulans*; in all cases however, the diagnosis can be established by finding the characteristic bacillus.

METHODS TO BE USED TO PREVENT EXTENSION OF THE DISEASE.

In order to prevent the extension of plague we must know how the bacillus is conveyed. Plague bacilli exposed for four hours to sunlight at a temperature of 108° F., no longer grow on bouillon. Similarly exposure for four and a half days to sunlight at a temperature of from 84° to 88° F. (the ordinary temperature at Hong-Kong in the summer) produces the same result. In the exsiccator the bacillus succumbs in three hours. From these facts, and because it has never been found in the air, it is most improbable that plague is an air-borne disease. It is conveyed by men suffering from the disease, by clothing contaminated by urine, feces, or expectoration of patients suffering from it, and by animals such as mice, rats, and pigs coming from infected districts.

The channels of infection are (1) the skin, (2) the respiratory tracts, and (3) the gastro-intestinal canal. The skin is by far the most common source of infection by means of wounds, abrasions, or insect bites. Yersin and other observers have confirmed the fact that it is communicated by fleas. In the respiratory tract infection occurs by the discharge from the nose or mouth. Experiments have proved that guinea-pigs may be infected by simply daubing the nostrils with the sputum from a case of pneumonic plague. With regard to the gastro-intestinal tract, although that is not the usual way of infection, to prove that it may occasionally occur I would call attention to Wilson's experiments in feeding pigs with plague bacilli. It is also just possible that in the epidemic of 1896 the disease may have been introduced to Hong-Kong by infected pigs. In August of that year a number of pigs died on a steamship coming from Pakhoi to Hong-Kong; plague was then prevalent at Pakhoi. Wilson examined some of these animals and found that the post-mortem appearances were similar to those met with in plague. A bacillus was obtained from the organs of these pigs which was not to be distinguished from the bacillus of man; the injection of cultures of this bacillus in animals produced the same pathological changes met with in plague. In 1899 Cheung Chau, a small island some 15 miles from Hong-Kong with 1000 inhabitants, was almost decimated by plague. On inquiry I found that preceding the outbreak there had occurred an epidemic amongst the pigs on the island and during that time diseased pork was selling at about one-third the usual price. The Chinese eat sun-dried pork—that is, pork which has not been cooked. Wilson found that plague bacilli remained active for three days in pork which had been boiled if it had not undergone decomposition. It might be said that the human gastric juice would kill the bacillus, but that has not been proved. Wilson found that the bacillus lived for three days in a one-half per cent. solution of hydrochloric acid. Another point in favour of food infection is that in infected houses frequently members of only one family are affected. As with cholera so with plague, the water from an infected area must be regarded as dangerous, seeing that this may be contaminated with plague bacilli by means of the urine and feces from patient suffering from this disease.

Having dealt with the methods by which it is conveyed we are better able to state the measures required to combat the disease. I will divide these into two: first, public hygiene; and second, the precautions necessary for the individual, or private hygiene.

HYGIENIC REGULATIONS.

Public hygiene.—The importation of the bacillus must be prevented as far as possible. This is the duty of the port medical officers of health, supervised by other medical officers and the inspector of the Local Government Board. If a person arrives from an infected port suffering from plague, or from an illness suspected to be plague, he must be isolated and his dejecta must be rendered harmless. The cabin occupied by the patient, and the ship generally, must be disinfected. All fomites belonging to the patient should be destroyed. All those who have been in contact with the infected person must be kept under medical supervision for 10 days as this is supposed to be the incubation period. As with cholera so with plague, all water from an infected port should be regarded as dangerous. Should the disease occur on shore those suffering from it should be isolated, the dejecta should be burnt, and the house and the articles belonging to the patients should be thoroughly disinfected. All persons who have been in contact with the patient must be segregated under medical supervision for 10 days. The hygienic condition of privies, drains, &c., must be attended to, and a house-to-house visitation of the infected neighbourhood should be made. Meat from infected ports should be inspected. Rats should be destroyed as it seems that they have played an important part in the production of some epidemics. In China dead infected rats are frequently precursors of outbreaks and are found lying dead in the streets. Patients who have died from the disease should preferably be cremated.

Private hygiene.—During the prevalence of the disease those in attendance on the sick should maintain perfect cleanliness of the person; the hands should be frequently washed and watch should be kept for the slightest abrasions or wounds of the skin. All attendants on the sick should not eat in a sick room and should be most careful to disinfect their hands and face. All food should be well cooked and the dishes should be cleansed with boiled water. Houses known to contain, or suspected of containing, cases of plague should not be visited unless at the call of duty.

I have necessarily only dealt briefly with the measures to be taken in dealing with this disease. In conclusion, I will give you briefly the procedure adopted in Hong-Kong in dealing with the outbreaks of this disease.

MEASURES ADOPTED IN HONG-KONG.

House-to-house visitation.—The disease is notifiable in Hong-Kong and has been so since 1895, but as this notification is universally evaded by the Chinese, immediately on the receipt of information that the disease has reappeared a house-to-house visitation of the infected districts is made. The sanitary authority has the power to institute such visits in any districts in which the disease may prevail. It must define the limits of such districts and this house-to-house visitation is effected by officers of the board assisted by the police. The removal of the sick and dead is conducted in ambulance provided for the purpose and kept at the hospitals and police-stations. The dead bodies are taken to the public mortuary and there they are examined by a medical officer; those who have died from plague are buried in the cemetery set apart for that purpose, the coffin being packed with chlorine of lime or carbolic sawdust.

Segregation of contacts.—At the outset arrangements are made for the isolation of all those who have been in immediate contact with cases of the disease in the infected houses. It will be remembered that in the recent outbreak in Glasgow this measure was employed. When the daily number of cases increased greatly the continuance of this system was found to be impracticable, and the following method was adopted in Hong-Kong. Sheds were erected in various parts of the city to which occupants of the houses were taken whilst their clothing and effects were being disinfected, after which the persons were allowed to return to their own homes.

Isolation hospitals are provided. In my opinion these are better if made of wood—temporary structures which can be destroyed.

Disinfection of infected premises.—This consists in spraying the wall with a solution of corrosive sublimate (1 in 1000) or fumigating with free chlorine gas. The floors and furniture are then scrubbed with a solution of Jeyes fluid, and the walls are limewashed.

Latrines.—Special attention is paid to the disinfection of all public latrines by means of chloride of lime.

Sewers.—Extra flushings of the sewers are carried out by increasing the frequency of the discharges of the flushing tanks which are placed at the heads of all the heads of all the main sewers.

Destructor.—The night soil at the isolation hospitals and all dressings of the patients are burnt in the hospital compound after having been mixed with sawdust.

Antitoxin.—A supply of Haffkine's antitoxic serum is kept and supplied free of cost.

Rats.—A reward is given for each rat brought to the sanitary authority; in this way 25,000 rats were collected and destroyed in 1900 from January to July.

Anyone acquainted with the conditions of overcrowding, filth, and ignorance that exist in China cannot fail to see that it will be years before plague can be stamped out of that country. To show the overcrowding that exist in some parts of Hong-Kong I may mention that in one health district in that city there are 975 people to the acre. In England, of course, these conditions do not exist, but still there are many localities where, if this bacillus obtained a footing, it would grow and spread. Therefore one must be on the look out in order that if the disease should be introduced it may, by active measures, be checked at the onset.—*Lancet*, Jan. 26, 1901.

SPOON-SHAPED INDENTATIONS IN THE SKULLS OF THE NEWBORN.

WITH ILLUSTRATIVE CASES, AND A NEW METHOD OF TREATMENT FOR THE IMMEDIATE RELIEF OF THE DEFORMITY.

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The subject of indentations in the skulls of the newborn is not one to which very careful attention has been paid in this country. Odd cases doubtless have from time to time been reported in the various journals and textbooks on midwifery; but, as far as I can discover, no one has considered the subject in detail. In Germany the case is only a little better. In France, however, it is very different. Ever since Ambroise Pare first referred to the deformity successive generations of obstetricians have interested themselves in the matter, and even in recent times hardly a year passes without one or more treatises or papers on the subject appearing.

CAUSATION.

Indentations of the foetal skull may be either spoon or furrow shaped. The two varieties occur with about equal frequency. They, however, have not the same significance, for although the conditions producing them are in the main the same, the furrow-shaped variety is much less serious, and seldom gives rise to much immediate trouble. My purpose, therefore, at present is to consider almost exclusively the spoon-shaped indentations.

The injury, which is situated usually on one or other parietal or frontal bones in the neighbourhood of the anterior fontanelle, is by no means un-

common, especially in Glasgow where rickets is so prevalent amongst the lower classes, and parturition is in consequence so frequently laborious. This leads me to say that the accident, with few exceptions, occurs where there is a deformity of the maternal pelvis, and, as rickets is the most common cause of such, we meet with the injury generally in the offspring of women with flat rachitic pelves. The extent of the pelvic deformity need not be extreme; most commonly it is just sufficient to cause a moderate degree of obstruction to the passage of the head. That was so in 3 of the 4 cases I have seen, and in the recently reported cases by Hinck, Drittel, Braune, Boissard, Budin, etc.

In the great majority of the cases reported extraction was completed by traction, either on the child's head with forceps or on the trunk if the presentation was a breech or the child had been "turned." Still in a certain small proportion labour terminated spontaneously. Braune's 2 cases and 1 of Hinck's already quoted were examples of this. Roseuski in 43 cases collected by him found spontaneous birth took place in 2 cases, and Menke in 14 cases found it twice. In all these cases of spontaneous birth there was a moderate degree of pelvic deformity.

Where a deformity of the pelvis exists the indentation is usually caused by the head being pressed against the projecting sacral promontory. Occasionally, however, the anterior pelvic wall, an undue prominence of the ileo-pectineal eminence, and still more rarely an osseous tumour of the bony canal, as in the case of Hoffmann quoted by Lelievre, or a tumour of the soft parts may be the cause.

On the maternal side, apart from deformities of the pelvis, there are very few conditions that have given rise to depressions of the foetal skull. Veit reported a case in a normal pelvis where he considered the cause to be tetanic contractions of the uterus following the administration of ergot. Others have mentioned as causes lateral deviation of the uterus, contractions of the muscles of the pelvic floor, and ankylosis of the coccyx.

Although abnormalities connected with the foetus but rarely cause such depressions, they may to some extent favour their occurrence. Defective ossification of the foetal skull, for example, is a condition that certainly predisposes to the accident. Recently I made a few simple experiments on the skulls of "stillborn" infants. I found that I could produce depressions with the very greatest ease, and with little pressure in some cases, but in others I could make no impression on the bones at all, even although I used considerable force. In one living child also, which I remember very well, as it had a malformation of both its arms owing to an arrest in their development, with the slightest pressure of the finger an indentation could be produced so soft was the skull.

Lelievre, in his thesis, quotes a most interesting instance described by Budin, in which in a case of twins both the children were born with depressions on the skull. The "aftercoming" head of the first child, which presented by the breech, was arrested by the presenting head of the second. Both children were born dead.

A prolapsed upper limb, by narrowing the pelvis, may produce a depression. Braune, for example, attributes one of his cases to this cause.

The exact part played by forceps in the production of the deformity is difficult to decide. That certain furrow-shaped depressions may be caused by them is certain, for I have once or twice produced them on the sides of the head when I have taken an oblique grasp; but that spoon-shaped depressions, which almost always occur in the upper part of the vault, are often caused by the blades of the instrument, is very doubtful. Occasionally, if the grasp on the head is very oblique, and the hold not very fast, one blade may directly cause the indentation. In the majority of cases of forceps delivery, however, it is pressure of the head against the promontory of the

sacrum or some part of the pelvic wall, not the blades, that is to blame. In this connection I would mention a case referred to more particularly later, where the deformity was produced in delivering with forceps from a normal pelvis a full-term child. The case was a "persistent occipito-posterior" (third vertex) presentation, and I came to the conclusion at the time that the depression over the right frontal bone resulted from pressure against the descending ramus of the pubes of the left side.

In delivering the head lying in a "persistent occipito-posterior" position, the two frontal bones are pressed against the anterior wall of the pelvis while the occiput is being swept over the perineum. The blades of the forceps cannot be the cause, because they would have slipped off the head before their tips could press on the upper part of the frontal bones; besides, in practice, when the forceps slip, as they so often tend to do in occipito-posterior presentations, they do so over the occipital not the frontal part of the head.

Most writers are now agreed that forceps have directly very little to do with the production of depressions. Of recent writers, Boissard thinks it is only when attempts at rotation are made that the instrument can cause them.

Occasionally, two depressions may be found in the same skull, then the one is usually smaller than the other and placed opposite to it.

One or two writers have mentioned the recurrence of the accident. Thus Ahlfeld mentions a patient who had three children born with depressions of the skull.

PROGNOSIS.

Speaking generally, the prognosis is not unfavourable. If the children are born alive the indentations, in the majority of cases, disappear in a week or two, having given rise to no trouble at the time, and producing no ill-effects later. In a certain number, however, the depressions remain, and are a permanent deformity. In such cases there are usually no disturbances, although occasionally there may be minor nervous storms.

In yet another class of cases, although the child lives for days, weeks, or even months, there are very marked local and general disturbances. Such cases usually terminate fatally. The symptoms vary. In some there are nervous phenomena, such as twitchings, convulsions, or paralysis, when there is no difficulty in attributing them to the depression. In other cases, however, the nervous symptoms are absent, or only appear towards the end, there being nothing present but such general evidences of disturbances as fretfulness, disinclination to take the breast, etc.

About three years ago I had such a case under my care, in connection with the work of the West-End Branch of the Glasgow Maternity Hospital. The child, which was mature, was extracted with forceps through a slightly flat rachitic pelvis. It had a spoon-shaped depression over the right frontal bone, but otherwise seemed well, so I did not consider it necessary to operate. The child did not thrive, however. It did not take nourishment quite satisfactorily. Still I could not satisfy myself that this was due to the depression, which remained unaltered. One day, some weeks after the birth, it had a few convulsive seizures, and died. For a day or two before its death I seriously thought of operating, and I have regretted ever since not having done so. Boissard reports a case very similar as regards the absence of nervous symptoms. Death occurred on the fourth day, however, in his case.

But there is yet another group of cases where the child is born dead, or so deeply asphyxiated that if the indentation is not immediately relieved death will certainly result. I saw a case of this kind some four years ago with a fellow practitioner. The mother was markedly rachitic, the C. V. was about 3½ in. Great difficulty was experienced in extracting the after-coming head. When the child was born it was found to have a deep spoon

shaped depression of the parietal bone. The heart was beating very feebly. We could not resuscitate the child. I remember wondering afterwards if relief of the depression would not have given the child some chance of recovering. However, let me say that when the injury occurs to the after-coming head it is a much more serious matter than if it happens to the fore-coming, because in dragging the former through injuries to the parts about the medulla are so liable to occur that in cases of depression it may often be difficult to say how far the serious symptoms are the result of the depression, and how far of the injury to the spinal cord. Besides the death may be due to long-continued pressure on the cord.

To give some idea of the seriousness of the accident I mention the following figures.

Ahlfeld mentions 10 cases with 2 deaths. Schröder found in 65 cases 34 per cent. of the children stillborn, 15 per cent. died from the injury, and 50 per cent. remained alive, and as far as could be learned, with few exceptions, were well. Menke reports 14 cases with 3 deaths. I have seen 4 cases, 2 are still alive and well; 1 died at the time of birth, and another some weeks after delivery.

Into the relationship between injuries to the skull and brain sustained during labour, and certain diseases of the nervous system, it is, of course, impossible to enter. As every one knows a very distinct connection can, not infrequently, be traced between the two.

TREATMENT.

For the immediate relief of depressions of the foetal skull many devices have been tried; thus, such things as exhaust pumps and cupping glasses have been advocated. Koehne, and others who have followed his suggestion or varied it slightly, recommended the application over the depression of a piece of leather previously smeared with some very adhesive substance. To the centre of this a cord was attached by which traction could be exerted. None of these devices have proved at all successful.

In recent years, however, several cases have been recorded in which operations have been undertaken for the removal of the deformity. Jennings, for example, trephined the skull, and elevated the depression successfully in a case in which the left frontal bone was indented. In that case there was no great urgency. The operation was performed because twenty-eight hours after delivery there was no improvement in the condition.

In a certain number of cases the life of the child has been saved by timely operative interference. Boissard has reported a most interesting case. A full-time child was delivered with forceps. The presentation was a persistent occipito-posterior. On the left frontal bone a large spoon-shaped depression existed; there was also exophthalmos of the left eye. The child seemed in a hopeless condition, as only once or twice there was a feeble heart beat. The depression was raised by making an incision through the scalp over the coronal suture, and a smaller one through the suture, passing a sound under the skull between it and the dura mater, and pressing out the depressed bone. The indentation, it is stated, was relieved by a force, *tres peu considerable*. Immediately, the child began to breathe and rapidly recovered.

Panzani reports one of Secheyron's cases, in which the child was delivered with forceps, the presentation being a "persistent occipito-posterior." The left parietal bone was depressed in the neighbourhood of the anterior superior angle. At birth the child seemed well. Two days after, however, it developed convulsive movements of the right arm, and it seemed generally feeble. On the day following, as the child seemed no better, an operation was decided on. An incision was made through the scalp, then through the bone, and the depression was raised by passing an ear

curette between dura and skull. On the second attempt the depression was relieved *brusquement*. The child, immediately after the operation, took the breast greedily and cried lustily. *On voit nettement que l'amélioration immédiate est évidente.*

The oldest reference to operative interference in depressions in the newborn is, as far as I can find, a case reported by Tapret in 1877. Boissard gives the case in detail. There was a great depression with fracture of the left parietal bone, with left exophthalmos and right facial paralysis. The child cried very feebly. M. Millard bored through the skull with a turrel and raised the depressed bone, with the result that the child immediately cried, the convulsions ceased, the exophthalmos gradually disappeared, and on the following day only a trace of facial paralysis remained.

Up to the present time depressions of the skull in the newborn have been severely left alone, except in a few recent cases such as I have described.

The disadvantages of surgical interference when it must be immediate are that it takes time to prepare the field of operation, and that frequently the obstetrician has not suitable instruments to hand, and so valuable moments are lost. The method employed by Poissard, as described, is very simple, and the operation requires very few instruments. It is certainly the operation I would be inclined to adopt if the following treatment, which has proved successful in 3 cases, failed.

A New Method of Treatment.

The bones of the vault of the fetal skull are very resilient, consequently a very little force applied to the depression from the inside is all that is necessary to relieve the indentation. If proof of this is required, I would refer to the two cases of Boissard and Secheyron already briefly described, where in the former the force required to relieve the depression was *tres peu considerable*, and where in the latter the bone is said to have returned to the natural shape *brusquement*.

The force must be applied early, otherwise there may occasionally be a little difficulty in raising the bones, as in a case reported by Prudhomme in his thesis published recently, where a depression of the left parietal bone caused convulsions and death of the child on the third day, and where at the necropsy firm pressure on the depression from the inside was necessary to remove the indentation.

Indeed it was knowing this resiliency of the bones, but not being able to apply a force to the inside that led some of the older writers to recommend cupping glasses, air pumps, etc. I will now relate a case and the treatment adopted.

About three years ago I attended a lady in her first confinement. Everything went on satisfactorily, except that the head took up and maintained an occipito-posterior position. As the second stage was being unduly prolonged, I applied forceps, the head being at the outlet. With a moderate degree of traction I delivered her. The child, a female was of average size and mature. It was slightly asphyxiated, and had, very much to my surprise, a deep spoon-shaped depression of its right frontal bone. With a little cold water and slapping, etc., the child cried, and indeed I could not say that it was much affected by the deformity.

While looking at the indentation it occurred to me that by firm compression of the head antero-posteriorly sufficient pressure might be exerted on the depressed bone to cause it to spring out. I hardly expected the simple manoeuvre to be so successful, but on the first attempt the depression came out, producing a sound as when a dent in a felt hat is removed. The infant certainly cried louder soon after.

After this success I tried the effect of compressions on artificially-pro-

duced depressions in stillborn infants. Sometimes, as I have said, I have been unable to produce such depressions, but which I have found it possible the indentations have all been relieved by antero-posterior compression, indentations of the parietal bones especially coming out with great ease.

Since the case described I have seen none of indentation of the skull, so I have had no further opportunity of trying the treatment. I am able, however, through the kindness of Dr. Malcolm Black, Physician to the Maternity Hospital, and Dr. Dunning (I asked the former to be good enough to try the treatment if a case occurred in his practice) to report a second successful case.

Mrs. X., a 3-para, had been previously delivered of two dead children, the first after craniotomy and the second after induction and craniotomy. At the third confinement a month or two ago Dr. Dunning, who was in attendance, called Dr. Malcolm Black in consultation, and the latter delivered the child, which presented by the breech. The extraction of the aftercoming head was attended with great difficulty, as the pelvis was very much deformed. The child's heart was beating very feebly. Over the left frontal bone there was a large, deep spoon-shaped depression. Artificial respiration brought about little improvement in the child's condition. Recollecting my request he tried compression, with the result that the indentation came suddenly out with a jerk. The child almost immediately after began to make attempts at respiration, and the heart commenced to beat more strongly; indeed, before long it was quite out of danger.

How far this simple method of treatment may prove successful I cannot say, as the cases described are the only two living children in whom it has been tried. I am hopeful, however, that in most cases it will be successful, because, as Milne Murray has pointed out, compression of the skull in an antero-posterior direction brings about an elongation of the vertical diameter of the head, and indentations are almost always situated on the parietal or frontal bones.

The cases in which the treatment may fail are, I fancy, those in which the indentations are situated low down on the sides of the head, or where too long a time has elapsed since the occurrence of the deformity. On looking over the literature on the subject I can find no reference to the treatment suggested.

POSTSCRIPT.

Since writing the foregoing paper I have treated another case successfully by compression.

The house-surgeon of the Maternity Hospital asked me to see an infant who had just been born, and had a large spoon-shaped depression of the left frontal bone. The following is a brief summary of the labour as given to me by the house-surgeon.

Mrs. X., aged 35, 10-para, was admitted to the Maternity Hospital, on November 23rd, 1900. The os was found to be fully dilated, but the membranes were unruptured; it was also discovered that she had a slightly flat rachitic pelvis, the conjugata vera measuring 4 inches. The membranes were ruptured artificially, when the head engaged in the transverse diameter with the left parietal bone directed posteriorly. As no progress was made, after waiting for some time, the house-surgeon applied forceps (Milne Murray's pattern). The head was grasped obliquely: it was drawn through the brim cavity and outlet without much difficulty. The child, however, was found to have a spoon-shaped depression of the left frontal bone fairly deep and extensive.

When I saw the child about an hour after, I found the deformity as described. The child seemed quite strong, however, and, as far as could be judged, none the worse for the accident. The house-surgeon informed me that it had only been very slightly asphyxiated at birth. He also explained to me how he had tried antero-posterior pressure, but had failed to remove the deformity. Pressing directly antero-posteriorly I also failed. When I changed the direction, however, and grasped the head obliquely, applying one hand over the frontal bone to the right and the other over the occipital to the left side, with ~~some~~ compression the indentation gradually and entirely disappeared.

In this case the bone did not spring out, and the pressure exerted was greater than in Case 1. I think the reason for that was that in the former case the bone was more ossified than in the latter.—*Brit. Med. Journ.*, Jan. 19, 1901.

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Dr. M. PICARD, of Nantes, France, writes to the author: "I have first to thank you for the great pleasure and also the great profit which I derive every day from the reading of your *Dictionary of Materia Medica*. I find there, better than anywhere else, brought together and condensed, the practical indications scattered in Allen, Hering, Farrington, &c. It is a great economy of time, and in the part already published this good book replaces for me all the rest. That it is not exclusively a *résumé* of experiences on the healthy is for me of no matter; it is to me very useful and more practical than its predecessors, and it is this which will make it more and more appreciated. For these reasons, I await with lively interest the publication of the second volume."

The *Revue Homœopathique Française* of October says: "The first volume goes from the letter A to H, and contains pathogenesies of NEW MEDICINES WHICH ARE NOT TO BE FOUND IN ANY OTHER MATERIA MEDICA. THIS FACT ALONE RENDERS IT A NECESSITY FOR PRACTITIONERS TO PROCURE THIS USEFUL VOLUME."

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THERAPEUTICS AND DOSE OF HAMAMELIS
VIRGINICA.

By Dr. P. JOUSSET.

(Translated from *L'Art Medical* for January, 1901.)

In a clinical lecture, after citing a case of grave and prolonged hæmorrhoidal bleeding in which after some amelioration with the mother tincture of Hamamelis fearful aggravation took place, and which was cured by the administration of at first the 3rd and afterwards the 12th dilution of the same drug, Dr. Jousset makes the following observations on

THE CURATIVE ACTION AND DOSES OF HAMAMELIS.

Hamamelis is a shrub of the family Saxifragaceæ which goes in America by the name of *Coudrier des Sorcières*, witch-hazel, because it serves, like the hazel of our country to which it resembles, to search the sources. The Red Indians attribute to this plant many medicinal properties and among others that of curing hæmorrhage especially hæmorrhoidal.

The pathogenesis in Allen's Encyclopædia gives a detailed history of Hamamelis. Among 575 symptoms reported by this author, a certain number relate to hæmorrhoidal hæmorrhages.

The property which Hamamelis possesses of curing hæmorrhoids is so indisputable that we find frequent mention of this medicine in allopathic works and particularly in the formulary of Dr. Bardet. In short, pharmaceutical industry is engrossed with

Hamamelis; and almost at every fourth page of the journals one meets with formulæ which ought to cure all hæmorrhages and all phlebitis.

But it is especially homœopathic physicians who have fixed the indications of *Hamamelis* in the different diseases for which this drug is suitable, and shown the doses and the mode of administration which are appropriate in each case. It is their works which have established, on the basis of clinical observations, that *Hamamelis* is a very efficacious medicine in most other hæmorrhages than hæmorrhoidal, in the treatment of complications of varices, but principally in orchitis and blenorrhagic ovaritis of which it soothes the pains with surprising rapidity.

It is now forty years I first prescribed *Hamamelis*. A country physician sent me a patient suffering from hæmorrhoidal hæmorrhages, and requested that I should place him under a surgeon for radical operation. As the case did not appear to me to be absolutely urgent, I prescribed *Hamamelis*, 3rd dilution. The hæmorrhage diminished and finally disappeared; the cure was lasting.

The question of dose in homœopathic therapeutics is, in the present day, notwithstanding the numerous works which this question has given rise to, still a problem of which we have a certain number of solutions for particular cases, but not a general solution.

We are not going to take up this question from the beginning. This is not the place for it. The general rules formulated up to the present are, we must confess, little applicable in practice, and we are but little advanced since the time when Petroz enunciated the following rule: When the medicine is well chosen, that is, when its pathogenesis presents a faithful picture of all the symptoms of the patient, do not change this medicine hastily, and find out the suitable dose by groping (that is by trial).

I add: Preserve the truths acquired by daily experience, and guard against fantasy.

When the experiences of distinguished physicians have determined not only the medicines but also their suitable doses in such common diseases as typhoid fever, pneumonia, pleurisy, it is injurious to innovate. And I call it mere whim to administer in these diseases medicines which have not had the consecration of clinical experience. I still call it whim to treat typhoid with cold

baths which, according to Hayem, has given a mortality of 18 per cent., whereas the classic treatment in the Hôpital Saint-Jaques has given us no more than 7 per cent.

As regards *Hamamelis* in the treatment of hæmorrhoidal hæmorrhages, the facts which we have reported tend to prove that the dilutions are more efficacious than the mother tincture.

In 1885 I treated a female attacked with very persistent hæmorrhoidal hæmorrhage. *Hamamelis* 3rd gave very considerable amelioration, but not to the point of cure. The mother tincture in 20 drop doses proved very inferior to the 3rd dilution. *Secale cornutum*, 1st trituration, triumphed over the disease. This woman, having had a relapse 15 years after, *Hamamelis* was tried but proved insufficient, and it was again the ergot of rye which definitely arrested the hæmorrhage. In other cases of which we do not give the details, it is *millefolium* which has proved the efficacious remedy.

One more remark: We consider as false the doctrine which teaches that a certain medicine is suitable for a certain disease, and examples taken from the therapeutic history of hæmorrhoids absolutely condemn this doctrine. Without doubt it will be convenient to treat all cases of pneumonia with *Bryonia*, all cases of whooping cough with *Drosera*, all cases of typhoid fever with *Muriatic acid*, and all cases of eczema with *Arsenic*, this method will be very convenient, but only it is false and deceptive. The allopaths, who have borrowed from us *Drosera* for the treatment of whooping cough, know only this drug, and when they prescribe it for all children who have whooping cough, they are disappointed with it in those cases in which *Cochineal*, or *Corallum rubrum*, or *Cina* is indicated.

In each particular case the physician ought therefore to study with care the symptoms presented by the patient, then compare these symptoms with the pathogenetic symptoms of Medicines, and above all with the results acquired by clinical experience. From this study will result the choice of the medicine and of the suitable dose. In following this method the physician obeys neither fantasy, nor fashion, nor inspiration but the grand law of indications laid down by Hippocrates, but especially formulated by Galen, the law which alone covers medical responsibility and gives assurance to patients of the best conditions of cure.

EARLY EXPERIENCES WITH BACILLINUM OR TUBERCULINUM.

By W. YOUNAN, M.B., C.M. (Edin.)

Early or first experiences through life are like so many landmarks on the road, that one may reasonably be excused for refreshing his memory of them, or for pointing them out for the guidance of others. In matters of science this becomes almost a duty, and a physician has this duty to perform *par excellence*, considering he has the interests of humanity at heart.

About the year of my conversion to Homœopathy I hailed with delight the appearance of a new book by Dr. James Compton Burnett, of London, entitled "New Cure of Consumption with its own Virus." The impatience with which I waited for its receipt was only natural, considering the subject matter of the work and the promises for good that it contained. For who could be indifferent to the sufferings of thousands of consumptive humanity when medical science had proclaimed a "new cure of consumption," that fearful disease before which physicians had so often stood with bowed heads and folded hands.

The book arrived in time, and the eagerness with which I devoured its contents ensured my happy digestion of it. To secure a sufficient supply of the virus, which could not then be locally obtained, I wrote to Dr. Burnett for the same, and he directed Mr. Heath, Homœopathic Chemist of Ebury Street, London, to send me half an ounce of Bacillinum C (one hundredth potency) in small globules, the very thing the doctor had been using himself. My satisfaction at having been so armed was immense, and I set about looking for cases to try the new remedy upon.

Some two or three months after there came under my care a young lady, fifteen years of age, suffering from continued fever of a remittent type. No impression could I make upon the course of the fever, which had already run into the third week with persistent high temperatures. One element of gravity seriously complicated the case: The heart was damaged from early childhood by a sharp attack of rheumatic fever, and there was present a loud mitral *bruit*. At this stage typhoid symptoms supervened with an alarming diarrhœa and an incessant cough, which was short and dry. An allopathic physician, a mutual friend, examined the case with me, and gave a very unfavourable

prognosis, the state of the heart arresting his attention particularly. The ordinary typhoid remedies had been given in vain, and I was resigning myself for the worst, when suddenly a very bad fit of coughing suggested to me the possibility of the whole trouble being *latently* tubercular. For I had repeatedly examined the chest for physical signs and could find none. What a straw is to a drowning man, so was the tubercular inspiration in favour of the administration of Bacillinum C to me. Two globules were administered at my morning visit, and I left in fear and trembling for the possible loss of most valuable time. Imagine my surprise and delight, however, when on visiting the patient in the evening I found that the fever had been less high during the day, the number of stools diminished and the cough less frequent and troublesome. For the following days a placebo was prescribed, and I had the supreme satisfaction to note how slowly and yet surely the patient went into convalescence. A second dose of Bacillinum was not necessary. The young lady went up country for a change, and when some months after she returned to town, looking greatly improved, I made an examination of the heart and was surprised to find the mitral insufficiency less pronounced. I lost sight of her for over a year, when one day being called to attend her sister I found my interesting patient had just returned from school up country, where she had enjoyed the best of health. I questioned her as to the heart, and she informed me that that organ had given her less and less trouble as her general health had improved. A final examination conclusively showed me what I had never dared to expect—a complete restoration of the heart. Not a trace of the once too evident mitral bruit could be detected, and I have since learnt to believe in the curability of organic valvular disease of the heart. I have lately heard that the young lady remains in good health.

Not long after my experience with the case related above I attended the two youngest children of a family living in one of the healthiest localities in town. Both of them came down with continued fever, which, in the third week of its course, developed typhoid symptoms, those of the lungs and bronchial tubes being specially marked. Rhus Tox, Arsenicum, Phosphorus and Sulphur had failed to benefit, and both the doctor and the patient were in a bad way. I well remember being called out one night

to one of these children as the mother had become quite alarmed at her breathing and general condition. I cannot say why I questioned the anxious mother as to the milk supply of the house except that the wish to trace her children's disease to tuberculosis was father to the thought. Her answer was definite and assuring to the effect that the *goala* (milk-man) had been supplying very bad milk for two or three months, and that, in consequence, since the children's illness, she had been using condensed milk. I fear the stable door here had been shut when the horse had run away! However, I jumped to the conclusion that tuberculous milk was at the root of the children's typhoid fever, and what more was wanted than to give the little patients a hair of the dog that bit them! Two globules of *Bacillinum C* were given to each and a placebo administered every three or four hours as a fever mixture. *Bacillinum C* proved as true as steel, and that single dose of orthodoxly ridiculous magnitude was sufficient to kill the whole army of tubercular bacilli that had *presumably* invaded the organism of each sick child. Both children went into speedy convalescence, and I their doctor incurred a deep debt of gratitude to *Bacillinum C*, which has become deeper and heavier with subsequent years of experience with it.

I am also very thankful to Dr. Burnett for having taught me the use of this very potent drug, without which many a morbid condition would remain incurable. Let others laugh at Isopathy and call it filthy and revolting. The Isopathic virus in the C or CC potency is as clean and inviting as the homœopathic vegetable or mineral drug, and acts as safely and pleasantly. Unlike our brethren of the opposite school we possess a very simple method for converting rank and deadly poisons into beneficent medicines. But that method is apparently too simple for learned orthodoxy! It is some consolation at least for us homœopaths to know that the researches of modern "regular" medicine tend towards Isopathy. If the virus of a disease can be so modified as to become a curative agent in that very disease, why cannot a vegetable or mineral drug be so treated as to have an effect on the sick body *similar*, if not *identical*, to that which it can be shown to produce on the healthy body?

Here is Homœopathy in a nutshell!

Here is the law *Similia Similibus Curantur*!

SPRUE OR PSILOSIS.

BY DR. HEM CHANDRA RAY CHAUDHURI, L.M.S.

The word Sprue is derived from the Dutch *spruw* or *spruw* which means Thrush, a Scotch word signifying white mouth. It was believed to be a variety of stomatitis depending on the presence of a parasitic fungus, *Oidium Albicans*. In veterinary medicine it means an affection of the inflammatory and suppurating kind, in the feet of the horse and of some other animals. The origin of the word *psilosis* is not so definite. It is from the Greek *psilos* meaning naked, bare. Perhaps the nakedness of tongue on account of stomatitis has given rise to the name. The disease is not a new one. Dr. George Thin has described it thus :—"Irregular and abnormal motions occur in all of them, there being : First, diarrhoea varying much in severity, frequency and persistence ; secondly, there are always symptoms of disordered digestion—dyspeptic symptoms ; and, thirdly, there is progressive emaciation—symptoms of malnutrition." It is supposed to be a disease of the tropical climate found in India, in the East and West Indies, China, etc., while English physicians are not wanting who tell us that it has attacked persons who have never been out of England. Recently in a case in Calcutta, a physician of the old school confounded it with secondary syphilis. Indeed the prevalence of diarrhoea and stomatitis may be mistaken with syphilis or abdominal phthisis. Our so-called *sutika* is nothing but sprue. It is not an outcome of syphilis. The hill-diarrhoea comes under it. It attacks males and females alike, but the number of visitations in males are more than in females. In our country it is particularly so with females on account of their sedentary habits and close zenana system. It is a prevalent opinion that sprue attacks only Europeans. The error becomes more prominent as most of the European physicians with their notion of hill-diarrhoea confine it among themselves only. Drs. Crombie, Buchanan and others have seen cases in natives of India. The identification of the disease was first attempted by Hillary who wrote from the West Indies. At a meeting of the British Medical Association, the discussion on sprue was undertaken by Dr. George Thin. He was followed by Drs. Manson, Hendersoff, Buchanan, Macleod, Cantlie and others. Dr. Thin divided sprue

into two classes. The one in which sore mouth is prominent and the other in which diarrhœa is the prevailing character. Dr. Henderson makes it into two groups, according to the early or late development of the disease. Dr. Buchanan is of the following opinion :

“ 1. That primary or protopathic sprue is common among natives of India.

2. That secondary sprue following on (a) dysentery, (b) acute entero-colitis or enteritis, is common.

3. That incomplete or arrested sprue is probably very common.

4. That the condition known as ‘famine diarrhœa’ is essentially the same in its symptoms and ultimate results as sprue.

5. That in many cases of chronic relapsing dysentery a condition strongly resembling fully-developed psilosis is met with, and that characteristic frothy pultaceous diarrhœa alternates with the dysentery.”

Dr. Patrick Manson regarded this not as one disease but as a variety of diseases with a series of symptoms in common.

The European physicians of Cochin China, the French possession, called it *diarrhée chronique de Cochinchine*; and believed it as the result of dysentery.

For all that has been written or said I am disposed to look upon sprue as a separate disease which has for its predisposing causes over work, bad food and other kinds of debilitating diseases as malaria, syphilis, diarrhœa, dysentery, etc. It, like plague, may attack any person supposed to be in good health or can come on while suffering from the above mentioned diseases. So far it can be said that the time has arrived when our present knowledge of clinical medicine makes it possible to classify sprue as a separate disease.

Ætiology. The onset of the disease in many cases is surreptitious. At first there are symptoms of indigestion which are taken as those of dyspepsia and lightly passed over. Irritating food, keeping up nights, use of intoxicating drinks, abuse of tea and coffee, insufficiently nutritive diet, ill ventilated houses, over exertion, anxiety, use of bad meat or milk, over use of butcher's meat without fresh vegetable diet, preserved meat or fish, etc., may be taken to be the predisposing causes. Dr. Cantlie thinks that acrid vegetable oils used by the Chinese and

other natives of Asia in the preparation of food is a fruitful source. "The acidity of the products of these oils may be gauged by the pungency of their odour whilst exposed to heat in the frying pan and their prolonged use is well calculated to set up an irritation of the mucous membrane of the alimentary canal which may become chronic." For myself I cannot subscribe to the opinion set forth by Dr. Cantlie, for then the disease would not have attacked those who cook their food in ghee or lard. In fact it is more found among meat eaters than among vegetarians. Bad meat, milk and other irritating foods are also chief causes. The use of meat or milk after four hours in hot days and six hours in cold times, from their first production in the raw state, should always be deprecated. They cannot remain in a state fit for use after exposure to such length of time without undergoing decomposition which it is impossible to detect by the naked eye, or the senses of taste and smell. The infantile liver is due also to bad milk. The Hindu and Mahomedan parturient women are given irritant drugs which may be taken as sowing the seeds of the exciting cause. The inception of the poison of sprue is wanted to manifest the disease. Malaria, syphilis, diarrhoea, and dysentery act in the same manner. The "morbus Bengalensis" of Dr. Chevers and the "famine diarrhoea" are nothing but sprue. The Report of the Sanitary Commissioner to the Government of India of 1887 contains a faithful picture of famine diarrhoea by Dr. D. D. Cunningham. In Quain's Dictionary of Medicine, Dr. Thin's article on Psilosis refers to the relapsing dysentery as the precursor of sprue. Relapsing diarrhoea also maintains the same foreground. This is *antika* of parturient women. It is my impression that the bacillus of sprue comes through food or cow's milk.

Symptoms.—Sprue according to its severity of onset may be divided into acute, subacute, and mild varieties. Acute cases terminate within a year. The type is characterized by the rapid development of symptoms. The subacute cases are also generally met with. They last a longer period and ensue as a sequel to other diseases. Mild cases pass off as dyspepsia. The symptoms are almost alike in acute and subacute cases. The mild have a different character. Dysenteric diarrhoea with ulceration of mouth and tongue are the symptoms of the first two. The nature of the stools may be different in Europeans and Asiatics. The diarrhoea alba

or white flux, painful or without pain, is the European type. White, frothy, copious and offensive stools are common with them. In Asiatics, pale yellow or brown with flocculent green mucus, copious, frothy, fermenting stools are the usual character. They are generally painful though some times painless; dysenteric diarrhœa is the usual form with pain in the umbilicus before and during stool. Nausea and vomiting may accompany such symptoms. The stools may be associated with blood in varying quantity and colour. Vomiting of green bile is a harassing symptom. Ulcer in the mouth is always painful. The "psilosis linguæ" prevents deglutition of solid foods and therefore the liquid ones are preferred. It sometimes assumes a herpetic nature. The ulcerated patch in the gums of the two last molar teeth has been pointed out by Dr. Crombie as characteristic. They are termed molar ulcers. The buccal mucous membrane and that of the tongue become subsequently raw and eroded. The corners of the mouth are also affected. This is a sign of ulceration from the mouth to the intestines. The mild form, like the other varieties acute and subacute, begins with eructations smelling like putrid eggs; diarrhœa now and then follows. The stools are usually yellow or brown, frothy, and of putrid smell. Ulceration of mouth or tongue generally does not ensue. Diarrhœa recurs now and then after long intervals without the manifestation of severe symptoms characteristic of the other two varieties. Several cases of this nature have been brought to my notice and they can be managed without the subsequent appearance of urgent symptoms. The symptoms are the belching of wind emitting putrid odour or they are tasteless. The diarrhœa is the only peculiarity. Morning diarrhœa is the frequent characteristic. The diarrhœa is increased by the use of liquid food, such as sago, barley or arrowroot.

Diagnosis.—The difference between sprue and other diseases is not so difficult to detect as at first sight it seems. Ordinary kinds of diarrhœa and dysentery have no accompanying buccal or fæcal symptoms which can be mistaken for it. Phthisical stools which are rather white in character and are associated with symptoms of lungs and intestines quite different from sprue. The enlarged mesenteric glands are the accompaniments of tuberculosis affecting the intestinal canal. In sprue it is a rare concomitance. Dr. Thin has mentioned a variety of chronic tropical diarrhœa resembling

sprue. Sprue attacks young persons while this chronic diarrhœa is a disease of old European residents of the tropics. The mild form of sprue can be distinguished from the ordinary kinds of dyspepsia by their intermittent appearance after long intervals. The stools are frothy, putrid and of brown or yellow colour, appearing mostly in the morning. In some cases soreness of mouth may accompany. The stools are not stopped by the use of liquid foods. Solid food like rice with fish soup in small quantity gives a consistent stool. Many persons will not agree with me in calling this as a variety of sprue. But extended observation will show that this form has a separate existence from dyspepsia. It is not proper to call every variety of diarrhœa and indigestion dyspepsia. The boundaries of these diseases should be well defined.

Prognosis. The prognosis of acute and subacute cases are not always favourable. The onset of fever and its long duration, terminating in a continued form show the gravity of the disease. The old school medicines with stimulants generally produce deleterious effects. Homœopathic medicines also require careful administration and they cannot be repeated safely. The stoppage of diarrhœa without producing any other evil result must be looked for in the beginning. The fever should be taken care of simultaneously or afterwards. Attention in the reverse direction produces bad results. When the acute or subacute type has arrived at such a stage that diarrhœa and fever have taken prominent hold during day and night, the prognosis is generally bad. The mild variety which recurs at long intervals is always amenable to treatment, if medicines are carefully selected and repeated.

Pathology. Postmortem examinations have not been numerous enough to allow any detailed description of changes in the different stages of the disease. The small intestine is seen to be particularly atrophied. The large does not undergo so much change. Concomitant with this atrophy a special connective tissue development is observed specially in the ileum. It is a sclerosis of the submucous layer. The glands and the follicles undergo degeneration. The atrophied condition is observed from the œsophagus to the large intestine. In acute cases with rapid termination, inflammation in the ileum and jejunum has been observed. Bertrand and Fontan have seen microscopical ulcera-

tions in the last portion of the small intestine and the whole length of the colon. For this reason they suppose that it is a result of dysentery. The lesions may be confounded with another disease which confines itself to the stomach only. It is Reichmann's disease which has dilatation of the stomach and sclerosis of its walls. The diarrhoea of the two diseases are almost similar. There is great increase of fluid secretion, consisting of mucus, bile and water, and absence of ulcer.

The ulceration in some cases affects largely the sigmoid flexure with atrophy of the glandular structures of the small intestine. It is not unusual to find atrophy of many organs with it. The liver and pancreas are greatly reduced in size though they otherwise look healthy. The herpetic nature of the buccal ulcers has produced an impression that they are due to nerve irritation. But the distribution of true herpes at the peripheral termination of nerves points to its nervous origin. It is not so in sprue. The ulcers are irregularly distributed in mouth and tongue. Dr. Crombie's molar patches bear no correspondence with the distribution of nerves.

Various changes are manifest in the quality and quantity of the gastric juice. The principal or central cells of the stomach which secrete pepsin, and which create digestive ferment alter their secretion. The mother granules or pepsinogen which are converted afterwards into pepsin are in an atrophied condition and consequently the bad quality of ferment ensues. The parietal or oxyntic cells which secrete hydrochloric acid are changed in action. The ferment bears a strong acid smell well manifested in stools. The pepsin-hydrochloric acid, the principal product of digestion, shows a great deterioration. The antiseptic action of the gastric juice, if any, is greatly reduced. The parapeptone predominates over peptone and prepeptone. On account of the loss of salt in requisite quantity in the blood the hetero-albumose is not sufficiently liquified to form a uniform solution with the proto-albumose and deuterio-albumose. The digestive function is altered significantly by the formation of gas consisting chiefly of sulphide of hydrogen, which emits the bad smell. The preparation of the final product in digestion, peptone, is indefinitely delayed and this produces mal-nutrition.

The change in the colour of the bile is due to the bad character

of hydrobilirubin, which is a conversion of the bile pigments, bilirubin and biliverdin. In the ill diarrhœa of Europeans the white frothy stools are caused by the insufficient formation of the bile pigments. With Asiatics, the large quantity of the reddish-brown or yellow stool of sprue can be traced to the excessive formation of the two pigments whose relative preponderance causes the changes of colour. The excessive acidity of the gastric juice in sprue does not find alkaline products of bile in sufficient quantity to alter its acidity. Bile being naturally neutral or faintly alkaline, becomes rather acid in this disease. The antiseptic property of bile being questionable, it is supposed that by increasing absorption it lessens the putrefaction. In sprue the absorption is much reduced. The ferments of pancreas which are active in healthy organism are almost inactive in this disease. Trypsin which has power over alkalines, becomes useless in acid secretion. It remains to examine the bacterial action in the altered secretion, though no definite bacteria has yet been discovered in sprue. The normal gastric juice being peptinotic loses that virtue on account of its altered character. The bile and pancreatic juices have not that function. Consequently pathogenic bacteria may find a suitable ground to work. The partial atrophy of the liver, pancreas and intestinal glands are due to insufficient supply of blood as a result of malnutrition. The fatty foods are not digested on account of the altered character of the pancreatic secretion and bile. The relation of the ulcers of the mouth to those of the intestinal canal is one of extension from the one to the other. It has been observed that the sores in the mouth sometimes persist even after the stools have become solid. The only inference that can be made is that intestinal ulcers are cured while the buccal ulcers are persisting. The precedence of the one ulcer over the other is not definitely known. Either diarrhœa or stomatitis may precede. But generally stomatitis is the precursor. In mild forms stomatitis may appear now and then without diarrhœa. The persistence of ulcer in the mouth and tongue is significant. The molar ulcer is a characteristic sign which prevents free opening of the mouth and deglutition in acute and subacute cases. In the mild form the molar ulcers may appear or *Psilosis linguæ* is a peculiarity in acute or subacute cases.

The results thus described are based on the supposed action of

the organs referred to. It is certainly questionable how far our knowledge of their action is correct. The experiments on lower animals as well as on diseased men cannot be accepted as pointing to the real functions of the different organs of the human body. Instead of leaving everything in the dark we try to advance our knowledge on physiological and pathological bases. In sprue the atrophy of the intestinal canal in general and of the liver and pancreas in particular, show an undoubted feature. The ulcers in the small and sometimes in the large intestines are also unmistakable characters. The nature of the stools suggests the altered quality of the secretions and excretions already referred to. The persistence of bad secretions refer to the diseased condition of the organs.

Treatment. Detailed description of the uses of medicine is unnecessary. Our first attention should be directed to diarrhoea and fever in acute and subacute cases. In the mild variety the preponderance of stomatitis or disorders in the intestinal canal should be our care. The anticipating character of the fever is well noticed. In the end it assumes the remittent type.

In the mild variety, indigestion and stomatitis require careful administration of medicine. Frequent use of medicines is always to be avoided. As for diet, soup made of green plantain and potato is always preferable, even in fever, when diarrhoea persists. Star-apples, Jambolanum, and strawberries sharpen the appetite as well as act beneficially on the stools. The use of liquid food is generally to be avoided. Fresh made arrowroot biscuits, and the pulp of half-burnt bael (*ægle marmelos*) are very useful. The use of meat broth, especially chicken soup cooked with green plantain, is to be preferred to other kinds of diet. The food should be taken cold and never hot.

In cases of inability to swallow solid food, thick gruel made of pearl barley should be given. Arrowroot water can also be administered. It is better to boil them with green plantain (*Kachkela*). The milk treatment in hill diarrhoea recommended by many European physicians seems to be only useful where there is particular aversion to meat soup or the injury is supposed to have been brought on by the abuse of meat. Even in those cases thick soup made of green plantain and potato is preferable. Fish soup is a good adjuvant in all cases where it can be taken without increase of fever.

REVIEW.

Leaders in Typhoid Fever. By E. B. Nash, M.D., Author of "Leaders in Homœopathic Therapeutics." Boericke & Tafel, Philadelphia, 1900.

In our notice of the author's *Leaders in Homœopathic Therapeutics* we said that "if this is his first work, and if he goes on as he has begun, he will enrich the practical literature of our school." Our prophecy has been justified by the present publication. The author has done his self-imposed task exceedingly well. The little book is eminently practical, and will afford real help to the practitioner, and no one who wishes to practise true homœopathy ought to be without it.

Though we are thus unreserved in our praise of the book, we cannot help observing that the title is somewhat misleading. The name *Typhoid Fever* is now restricted to a specific disease quite distinct from *Typhus*, though they have many symptoms in common, and though, in rare cases, when epidemics of both the diseases prevail, the one may shade into the other. The author does not appear to recognise this distinction, and speaks indifferently in the course of his work, of one and the other, and looks upon the differences as constituting varieties of the same disease, as the following quotation will show:

"If there is any one disease which more than another cannot be prescribed for by name, it is this one (Typhoid). No disease is more varied in its symptoms during its inception, invasion, and course, and none more liable to spend its force in different localities in the subject. In one case the cerebral and nervous symptoms will greatly predominate so as to take the form of typhus cerebrialis; in another, in the abdomen (Typhus abdominalis), and in still others, in the lungs and bronchi (Typhus pneumalis or Pneumo-typhus). Not only this, but during the course of a single case the form may change so as to assume these different manifestations. So in writing of the therapeutics of *typhus* we cannot arbitrarily divide the remedies into classes," &c.

It is true that for purposes of homœopathic treatment the name of the disease is of secondary or of no importance. But when the homœopathic physician uses names which have been settled and applied to specific diseases, it is of importance that he should

use them with scientific accuracy. There was a time when typhoid and typhus were confounded together, but there is no excuse to do so now that their distinctive characters have been demonstratively pointed out. The homœopathic physician should be the last to betray his ignorance of advanced research made in the old school, research which has revealed facts and established laws relating to etiology and diagnosis.

Barring this our difference with the author about nomenclature we fully endorse almost every point of doctrine and of practice which he has advanced. Thus, he is perfectly right when he says, "Pathology is alike in all schools of medicine, but the homœopathic school is distinctive in its *treatment*. * * That is what we contend for, and claim for it superiority over all other known methods." We would go further and say, Pathology may not always be correct, and, therefore, may often mislead, but symptoms, being nature's cries in response to drugs or morbidic stimuli and irritations, can seldom mislead. If we were offered a choice between pathology and symptomatology, we would prefer the latter. Besides, even if we had a complete and correct pathology we must have the aid of symptoms to differentiate between one case and another which have the same pathological name.

Again: we can confirm from our own experience his belief about our power to abort these fevers and indeed all diseases which are due to a specific cause and run a definite course. He is giving expression to what is but common experience with all veteran observant homœopathic practitioners when he says: "Every case must have a beginning, and if the symptoms, during the *prodromic stage* are closely watched and the homœopathic remedy properly applied, my word for it, very few cases need go on to a *course* of fever." This is a faithful representation of the bright side of homœopathy, but there is a dark side which could not have escaped the homœopathic physician who keeps his eyes open, and which it is the duty of every one to guard against. It is this, that cases naturally mild may be transformed into grave ones by the wrong application of homœopathic medicines which are very often mistakenly supposed to be potent for good only and innocent of all harm. Strange and incredible as it may appear, even ordinary cases of fever heroically treated by our infinitesimals may develop into cases of typhoid and

typhus. We have good reasons to believe that our infinitesimals, by virtue of their penetrating power, often prove more dangerous than the massive doses of the old school.

We are glad to find the author advises the practitioner to wait and watch instead of prescribing at random. "If we are not reasonably sure of our remedy," says he, "on account of an undeveloped case [or, as we should add, on account of no one remedy covering exactly the symptoms of a case], it is better to wait a while than to 'fire in the dark,' for we are liable to do more harm than good. To be sure, it sometimes takes more courage to stand than to fight, but we want to know what we are fighting and where to aim our guns." We shall often find to our surprise that by thus waiting and watching we have allowed the best physician to treat the case, and that is Nature herself, who will not unoften conduct the patient safely through what was apparently the most severe form of disease. It is thus we have achieved some of our most brilliant cures.

It is very, very rarely, however, perhaps in one case out of a hundred, that a case left to itself will recover under dietetic regulation alone; and, as the author says, "it is seldom that we find a case of typhoid fever that can be carried through the course on one remedy." Hence we must have a good stock of well-proved remedies to meet the almost endless emergencies that will arise in the course of treatment of these fevers. Dr. Nash has furnished us, in this little book of 128 duodecimo pages, with clear and reliable indications of fifty-one remedies among which he has included such drugs as *Arum triphyllum*, *Caustarea ostrearum*, *Chelidonium*, *Cina*, *Cocculus*, *Leptandra*, *Melilotus*, *Nux vomica*, *Pulsatilla*, *Silicea*,—drugs which are seldom thought of in the treatment of fevers of this description, but of which he very justly says: "If some should object that these are not typhoid fever remedies, because they do not create or cause the pathological changes that characterize a fully developed case of this disease, I answer that any remedy having the symptoms of the patient even though they be only subjective symptoms, is homœopathic to the case, and that if applied when and where it belongs, the pathological changes so characteristic may be arrested." With reference to *Nux vomica* and *Cina* we can bear our testimony to what he has said about them.

Dr. Nash's observations on *Lachesis* are well worth bearing in mind, as indeed all that he has said about the other remedies. He endorses the opinion of the elder Lippe, "that *Lachesis* was a remedy that could, like *Sulphur*, sometimes be used on the indication, 'when other apparently well-chosen remedies do not act.'" "When between *Rhus tox.* and *Arsenicum* or *Hyoscyamus* and *Opium* where the depression and stupor or weakness had points of resemblance, or one or the other of them had been tried, or the case was not developed in all the characteristics of one remedy, that a few doses of *Lachesis* did seem to develop and clear up the case so as to make the indications more unmistakable. 'But,' he shrewdly adds, 'I believe it must be true that if all the symptoms had come out at that time, *Lachesis* must have been the indicated remedy, for there are no exceptions to *similia similibus curantur*.'" Our own belief is, which we have not seen reasons to change in the course of a long practice, that this clearing up by either *Sulphur* or *Lachesis* when other remedies do not act, is a pure superstition, and that neither *Sulphur*, nor *Lachesis*, nor *Opium* would clear up a case unless there were some indications for one or other of them. Blindly to prescribe one or the other of them in the belief of this clearing up will prove disastrous as it has often done.

Dr. Nash is a high dilutionist, not hesitating to use the 200ths, the 500ths, the 1000ths, and the 100,000ths. But he says: "So far as my own experience in regard to dose is concerned, if I were obliged to discard all but one I would reserve the old Hahnemannian 30th potency." In regard to *Gelsemium* he has admitted that, "as to dose, I have received the same testimonial from the use of the 200th, 30th, and the tincture;" and with regard to *Baptisia* he admits that "this remedy is, like *Gelsemium*, efficacious in either the high, or low, preparations." Now the question is: Suppose a case recovers under the mother tincture, would it have equally recovered under the 30th or the 200th or a higher dilution? And vice versâ. We do not think so. We believe there must be an appropriateness of a particular dose to a particular case or a particular class of cases. And we believe that Hahnemann's dictum that the higher alone are the most suitable is, as we have previously shown, an error which has done much mischief to his doctrine. In opposition to

Dr. Nash we maintain that mistakes are oftener made in the direction of too high instead of too low dilutions. We have seen genuine aggravations from both low and high dilutions, but more often from the latter.

Dr. Nash has some sound observations on the Premonitory Symptoms and on the Sick Room and Care of the Patient.

He recommends Psorinum as "one of our best remedies if, during convalescence, the patient is *hopeless*, in complete despair of recovery, notwithstanding that he is really getting better; the appetite delays, weakness continues, with night sweats, or sweats on the least movement. A dose of *Psorinum* 500th helps wonderfully in such cases." Would no other dilution do equal good? Suppose one has the 30th or the 200th. Should one wait till one has the 500th?

He very properly recommends fresh air as the best disinfectant, and condemns Carbolic acid, Chloride of Lime, Iodoform, &c, as "abominations and more injurious than any odor arising from the patient."

As regards diet he very wisely says that the "question cannot be absolutely settled alike for all patients." An experience of twenty-five years has proved to him that *oat meal gruel* is the best diet, and that "Alcoholic stimulants are no good. Proper food with the homœopathic remedy is all that is needed." We fully agree. The imperative injunction to support the patient by frequent doses of animal broths and stimulants is answerable for the loss of many a life, and the unnecessary prolongation of the duration of the disease in many a case.

Dr. Nash, whilst warning against "one of the greatest dangers," that of "gratifying to repletion an abnormal craving," has to admit, "on the other hand, that if the patient greatly desired any particular article, and could not be satisfied without it, that it was best to give it, but very carefully." He supports this advice by two instances, in one of which a fever patient was piteously calling for lemons, and continued to grow worse, till a lemon was allowed, which she swallowed, except rind and seeds, in one minute, and "improved from that moment and never called for another in her life." These cravings are sometimes, though not always, nature's demands for the needed food of the organism at the time, and then on their gratification will

depend the recovery or even the life of the patient. But the difficulty is to distinguish between natural and unnatural (mere morbid) cravings, and the physician is on his severest trial when he has to decide between them. He should proceed carefully, and, may we add, prayerfully.

The question is often asked, has there been any progress in Homœopathy since its discovery? The question is triumphantly answered by the question, has there been any progress in the law of gravitation? The question, however, is not as to progress in homœopathy as a law of healing, though even here we believe there is room for progress, but in homœopathy as a system of treatment based upon that law. In the latter aspect there has been, as there ought to have been, considerable progress; and this may be seen in the treatment of this one class of fevers, here treated. "Forty years ago," says Dr. Nash, "if asked from our knowledge of remedies what were the remedies most likely to be needed in this (the prodromic) stage, we would have answered *Bryonia*, *Nux vomica*, *Rhus toxicod.*, *Pulsatilla*, and *Belladonna*. It is different now, for there are two remedies that are oftener indicated than any of those named and which must be added, viz.: *Gelsemium* and *Baptisia*." The fact is, each addition to the *materia medica pura* is a step in the progress of homœopathy as a system.

We cannot close our notice of this little book without offering our thanks both to author and publisher for the pleasure and profit we have derived from its perusal. We doubt not our readers and all practitioners of our school will derive the same.

International Homœopathic Medical Directory, 1901. Homœopathic Publishing Company, 12, Warwick Lane, Paternoster Row, London, E.C. Pp. 122. Price 2s.

This Directory used to appear under the name of *British, Colonial and Continental Homœopathic Medical Directory* till the last year, when it had attained the sixth year of its existence. The present, therefore, is the seventh issue of the Homœopathic Medical Directory of the Homœopathic Publishing Company, under a different but a more comprehensive name, the justification of which will appear from the Preface which we quote entire, and which will give all the information about the present and future of the Directory.

With the first issue of the New Century, the DIRECTORY takes a wider view of its functions, and appears under a somewhat changed title. The Continent of Europe and the British Empire no longer exhaust the list of countries included, and the title has therefore been altered to INTERNATIONAL HOMŒOPATHIC MEDICAL DIRECTORY. Mexico is now included, and though it has not been possible to secure the lists of Brazil and other South American countries, steps are being taken to have them prepared for the next issue. A proposal has come to us from the United States of the North to open a department for such of our American *Confrères* as would like to give Western Homœopaths the convenience of having their addresses, where they can always be found. As this would add to the expense of the work, a somewhat higher rate of subscription would have to be charged. The suggestion has been made that American practitioners who subscribe one dollar shall have their names inserted, and shall have a copy of the DIRECTORY mailed to them. Whether this will come into effect or not depends on the degree of support the idea meets with. Thanks are due to Dr. Juan Antiga, of Mexico City, for the Mexican list. Dr. Alexander Villers, of Dresden, continues to be responsible for the list of the German Empire. Thanks are also due to Dr. Kafka, of Karlsbad, who has revised the list of Austria-Hungary. Dr. Bonino, of Turin, answers for Italy; Dr. Cartier, of Paris, for France; Dr. Brasol for Russia; Dr. Hansen, of Copenhagen, for Denmark; Dr. S. Van den Berghe, of Ghent, for Belgium; Dr. M. Calis, of Barcelona, for Spain; and Mr. H. C. Voorhoeve, of The Hague, for Holland. Dr. A. R. Griffiths, and Dr. H. M. Patton, of Montreal; and Mr. L. Thompson, of Toronto, have given valuable assistance with the Canadian list; Mr. E. E. Owen, of Melbourne, with that of Australasia; and Dr. P. C. Majumdar, and Messrs. L. Mitter & Co., with the Indian list.

In our notice of the issue of 1899 we criticized the Indian list as faulty in that it contained names which ought not to have been there, and omitted names which should have found a place. We are glad to find that the list has been improved, but it is not faultless. Some more names of regular homœopathic practitioners might have been added, and the names of all those should have been omitted, who have never graduated in any regularly constituted medical institution, however some of them may have succeeded in obtaining bogus American degrees, of which we have spoken so often in this Journal. The appearance in the Directory of the names of irregular practitioners of whatever country, detracts considerably from its respectability.

Does the Indian source of information account for the fact that both father and son figure at the top of the list over the heads of veterans, one of whose conversion to homœopathy dates as far as back as 1865, and who is the professional pioneer of homœopathy in India? All objections would be removed if the names were printed in alphabetical order.

EDITOR'S NOTES.

Bacillol.

F. Werner (*Wien. klin. Rund.*, No. 5, February 3rd, 1901) claims that bacillol is a perfect antiseptic. It is, he says, freely soluble in water, has a very faint, creosote-like smell, is highly antiseptic, killing anthrax bacilli in one to five minutes in a $1\frac{1}{2}$ per cent. solution, and glanders bacilli in five minutes in a $\frac{1}{2}$ per cent. solution, is quite harmless, possessing neither toxicological properties, not exhibiting any harmful or irritant local effect, and is very cheap, being little more than half the price of lysol, and comparing a 1 per cent. solution, which strength he usually employs, with a 1 in 20 solution of carbolic acid, one-tenth of the price of the last named.—*Brit. Med. Journ.*, Feb. 23, 1901.

Physician.

Dr. Moffitt writing in *The American Medical Monthly*, Jan, 1901, on the Physician makes the following appropriate remarks :

The physician must bear with all the whims, sophistries, deceptions, stratagems and irritations of the nervous and beclouded brains of women, and more especially of men, who never do know how to be sick gracefully, who, with foul breaths and sordid teeth, curse the doctor and "give him his dues," as they say, and, with some of them it is all the *dues* the doctor ever gets. For be it remembered, as a rule, the doctor's bill is the last one paid. It seems so very incoherent for the restored patient, with ruddy cheeks and rotund form, to be bothered with a bill charging for that which he now so little sees or feels the need of.

God and the doctor they alike adore,
Just on the brink of danger, not before ;
The danger past, both are alike requited—
God is forgotten, the doctor slighted.

The Ninth Jubilee of the University of Glasgow.

The University of Glasgow will, it is announced, celebrate its ninth Jubilee with appropriate pride, pomp, and circumstance on June 12th, 13th, and 14th of the present year. Founded in 1451 by Pope Nicholas V. on the model of the University of Bologna, it has during the 450 years of its existence been a beacon of intellectual light *urbi et orbi*.—to the great city on the Clyde and to the world at large. From it have gone forth many famous men, and generation after generation of healers of soul and body, of teachers and scholars, of

philosophers and writers—members of what Carlyle calls the great priesthood of letters. The profession of medicine may justly claim to have a special interest in the University of Glasgow, for to speak only of living men, it was there that Lister began the work which has made his name immortal; it was there that Gairdner made medicine seem to all who heard him.

Not harsh and crabbed as dull fools suppose.

But musical as in Appollo's lute,

And a perpetual feast of nectared sweets;

and it is there that Macewen, the Alexander of Surgery, having carried his victorious knife into every region of the body, now sighs for fresh worlds of disease to conquer. An official invitation has been addressed to the "Societas Medica Britannica" to send delegates to represent it at the Jubilee celebrations. In the meantime we may be allowed to present our respectful salutations to the Chancellor, Court, and Senatus of the University, from whom the invitation emanates, and to express our best wishes for the success of the celebration.—*Brit. Med. Journ.*, Feb., 23, 1901.

Precautions against Plague in London.

At the last meeting of the London County Council an important report from its Public Health Committee was received and adopted, and authority given to expend a sum of £50,000 if necessary in dealing with suspect and contact cases of plague infection. The report recommended that provision should be made for a thousand contacts and a hundred suspects. For the purpose of isolating contacts and suspects London has been divided into four districts, and it is proposed that separate accommodation should be provided in each district for the two classes. Provision has already been made in temporary premises for 212 persons, and it is now proposed to increase this by providing accommodation which could be got ready in a few hours for 200 persons, at an estimated cost of £16,000. It is also intended that arrangements should be made to provide accommodation, which could be got ready in a few weeks, for 600 more persons in temporary buildings to be erected on land in the possession of the Council. These buildings would not be commenced unless and until plague actually appeared in London, but it is proposed to expend the sum of £7,000 in the drainage, water supply, and the preparation of the foundation for these temporary buildings. In the brief discussion which preceded the adoption of the report, it was again pointed out that the health administration in London was in an anomalous position, in that the duty of dealing with cases of plague was cast on one

authority, namely, the Metropolitan Asylums Board; while the not less important duty of dealing with suspect and contact cases was outside their purview, and could be carried out only by the London County Council. It is a misfortune that this anomaly was not rectified when the London Government Act of 1899 was passing through the House.—*Brit. Med. Journ.*, Feb. 23, 1901.

A New Test for Mastoiditis.

In the *Journal of the American Medical Association* of Jan. 26th Dr. A. H. Andrews has described a new test for mastoiditis, which is performed by placing a vibrating tuning-fork over the antrum and listening to the sound over the tip of the mastoid with a small belled stethoscope. If the mastoid is filled with pus or granulations, or dense from obliteration of the air-cells, the sound is louder than on the opposite mastoid. Care must be taken not to stretch the skin between the stethoscope and the tuning-fork, for this increases the audibility of the sound. In 40 patients without mastoid symptoms Dr. Andrews has found no perceptible difference between the two sides; in four cases of mastoid disease the sound was louder on the affected side. The following case is an example. A woman, aged 40 years, had had suppurative disease of the left ear with occasional attacks of acute pain for 15 years. During three weeks she had suffered from a dull pain in the ear and mastoid region, which sometimes extended over the side of the head and as far forwards as the eye. The membrana tympani had almost disappeared and the ossicles could not be seen. A cholesteatomatous mass occupied the attic and the upper part of the middle ear. When portions of this mass were removed the surface beneath was found covered with normal granulations. The temperature varied between normal and 101° F. Deep pressure over the mastoid was painful. When the bell of the stethoscope was placed on the tip of the mastoid with the handle of the tuning-fork over the antrum the sound was much louder than on the right side: on the left side the fork was heard for 30 seconds, on the right for 16. The usual post-auricular incision was made and the mastoid cortex was found to be of ordinary density. The air-cells were small and filled with granulations. The cavity was cleared of diseased tissue, the posterior wall of the auditory canal and the outer wall of the attic were chiselled away, and the granulations and cholesteatoma were removed from the attic. The facial nerve was found exposed above the fenestra ovalis and sparging the cavity caused spasm of the left

eyelid and side of the face. The fork which Dr. Andrews uses for this test is C 512, so constructed that it can be heard by the normal ear for about 35 seconds.—*Lancet*, Feb. 23, 1901.

Disinfection of the Hands.

As was recently stated in these columns the results obtained with Schleich's *Wachsmarmorstaubseife* by several observers were all more or less contradictory, and that not only with regard to the claims of the inventor himself but also *inter se*. It occurred, therefore, to Dr. Deeleman to inquire into the matter, so that the question might be set at rest once for all, and accordingly he instituted a series of experiments with the discredited preparation and has recorded his verdict in the *Deutsche Militär ärztliche Zeitschrift*. The conclusions arrived at, although in some respects at variance with Schleich's assertions, are, nevertheless, on the whole in favour of the efficacy of the compound, which the investigator pronounces to be "a remarkable means of disinfection for the hands." It is absolutely necessary, however, that before using it the nails should be cut as short as possible and also that every endeavour should be made to clear out all fissures and furrows, whether natural or artificial, and to render the skin of the hands as soft, smooth, and pliant as possible. In order to prepare Schleich's "mechanical disinfectant" 750 parts of resinous soap (clear yellow in colour, freshly made, and cut up into small pieces), having been dissolved in 1500 parts of hot water, should be placed upon a fire with 150 parts each of stearine and wax. As soon as the last named substances are melted 700 parts of powdered marble should be poured in very slowly, the mixture meanwhile being carefully stirred. The loss from evaporation (usually about 300 parts) should next be made good and then boiling be allowed to continue until the mixture becomes of the consistency of syrup, the last part of the process generally lasting about half an hour. As soap produced in this way is said to cause slight epidermic erosions in tender skins it would be prudent to avoid making use of it in laboratories where preventive serums of an infectious disease were being manufactured. *Lancet*, March 2, 1901.

Creasote in Pneumonia.

In a paper read before the Central Texas Medical Association Dr. J. L. Van Zandt drew attention to the advantages to be obtained by the use of creasote or preferably creasotal in pneumonia. After giving his own experience, which he said was satisfactory, Dr. Van

Zandt quoted several passages from the writings of other physicians all speaking highly of this method of treatment. Dr. Van Zandt spoke in enthusiastic terms of the results he had obtained. At first he gave one drop of the drug every three hours, but latterly he had prescribed seven and a half minims of creasotal. This appears to be a large dose, but he states that "others give larger doses with possibly better results or no harm." He adds: "I have had cases in which the fever was gone in from 24 to 48 hours, and I am now somewhat disappointed if my patient is not ready for dismissal by the third or fourth day." In conclusion, Dr. Van Zandt expresses his opinion "that the use of creasote or carbonate of creasote in the treatment of pulmonary inflammation is one of the greatest life-saving discoveries of the century just ended." We cannot adopt Dr. Van Zandt's extremely laudatory attitude towards creasote, but in some affections, notably of the gastro-intestinal tract, it is undoubtedly a most useful drug. At one time it was extensively used in pulmonary tuberculosis but is now not nearly so frequently employed; indeed, many authorities consider that its great advantage in cases of tubercle is not due to any selective action in the bacillus of tuberculosis, but to its preventing fermentative changes in the digestive tract, thereby greatly improving the power of digestion or absorption of food. With regard to its use in pneumonia we prefer to suspend our judgment. The recognised treatment of this affection is mainly expectant—to preserve the patient's strength as far as possible and to endeavour to lower the temperature should it continue raised too long. We think that creasote might be tried in this country more extensively than it has been, for the evidence brought forward by Dr. Van Zandt is certainly strong.—*Lancet*, March 2, 1901. •

CLINICAL RECORD.

Foreign.

THE LOCAL USE OF ARSENIC IN MALIGNANT
ULCERATION.

BY GEORGE L. VAN DEURSEN, M.D.

Case I. W. T. Expressman. When first seen was suffering with an epithelioma of the right side of the lower lip. It was a typical "smoker's cancer," having undoubtedly been caused by the irritation of the heated clay pipe held constantly in the one position.

He came under observation the first week in January, 1894. At that time the growth involved nearly one-half of the lower lip, the ulceration exposing an area as large as a quarter of a dollar, and the surrounding induration caused a thickening of the lip to at least five-eighths of an inch. The sanious discharge had been weeping down over the chin, setting up a severe irritation and threatening a general spreading of the condition. The ulcerating surface was at once cleansed with peroxyde of hydrogen followed by a thorough application of carbolised linseed oil and a free dusting with ars. 2x trit. As the ulceration extended over on to the inside of the lip, pieces of cotton saturated with peroxyde were placed between the lip and teeth to prevent the irritation from the teeth and to keep the surfaces as clean as possible. These were renewed several times a day as conditions required.

Internally he was given tablets of ars. 3x tid., and was furnished with a vial of the carbolized oil and another of the 2x trit. with instructions for its local use at home. He reported at the end of a week, at which time the growth showed noticeable improvement. It was again cleaned carefully with the peroxyde of hydrogen and the oil and ars. applied as before.

He was seen twice after this at period of two weeks; improvement was marked at each time and he was discharged, cured, the latter part of February, having been under treatment, practically, two months. He was given another vial of the tablets and continued taking one every day for about a month. The growth was entirely removed, all induration absorbed and the reddened scar tissue soon faded to normal color.

He has been seen frequently in the six and one-half years since then, and there has never been any indication of recurrence.

Case II. L. M. Weaver. Native of Quebec. Age 47. About twelve years ago noticed a small growth on right side of nose about

size of a pea. It grew very little till he began treatment. About six years ago it was removed by actual cautery, but returned in about four weeks and was soon twice the size of the first growth. A year later he had it cut out, followed by recurrence in four or five weeks, larger than before.

Two years ago he had it removed by a plaster. The treatment was very painful, but it healed perfectly and gave no trouble for about six months, at which time it began to grow at upper margin of the old cicatrix. It grew slowly for about a year then began to ulcerate; scabs would form and remain for two or three days then loosen, and from beneath it would come a thin muco-purulent discharge.

When he came to me for treatment, Aug. 28, 1899, there was an open ulcer nearly the size of a ten-cent piece covered with a scab, which on removal showed an excavation that would have taken a large marrowfat pea. The edges of the ulcer were hard and raised. After cleansing the cavity and surface with peroxyde of hydrogen, the carbolized oil and ars. 2x trit. were applied and 3x tablets given, as in the previous case. Dressing was done twice a week at first, later four times a week.

By the last of September the growth was sloughed out, except at the upper border, and the excavation was filling rapidly with healthy granulations. It was now dressed only twice a week, applying the arsenic only to the points where the growth seemed to persist and dressing the remainder of the wound with calendulated boracic acid powder.

Improvement was steady, the excavation filled to a smooth surface, and the patient was discharged Nov. 24, 1899, cured.

There has been no recurrence up to the present time, and the patient was seen within the past week looking well.

Case III. Mrs. H. R. American. Age 42. History on father's side negative. Mother's sister died of consumption. Another sister died from cancer of breast.

Patient always delicate, had usual diseases of childhood. Always troubled with neuralgia. Was married at 18, has not lived with husband for 21 years. During this time general health good.

Four years ago had trouble with heart, palpitation, shortness of breath, and a persistent hoarseness. She was under treatment for these troubles by several of the best physicians of our city with partial relief.

In December, '98, first noticed a small lump in upper lip near left nostril, which seemed to be between the skin and inside of the lip. This gradually enlarged, and in course of two or three months extended to right nostril and ulceration began. She used iodoform, carbolic salve, and other "home remedies," under the advice of friends.

During this time she was under the care of one of our best surgeons (not of our school however), who tried to console her by telling her "not to be frightened, till he was," while he prescribed some simple healing lotion. Aug. 17, 1899, came to my office for treatment. At that time the entire upper lip was involved. It was thickened to about three times its normal proportions, the colour was a dark livid, and ulcerated patches covered the greater part of the surface, extending into the mucous membrane at the lower border and above, involving both nostrils for a distance of three-quarters of an inch or more. To the left of the nose it spread upward on to the cheek and nodules could be found just below the internal canthus.

She complained a great deal of burning and some stinging pain. Treatment was begun at once, employing the same method as in the other cases. It was dressed twice a week, usually, sometimes three times, and the 3x tablets of arsenic were given internally.

Improvement was noticeable after a few dressings, and continued rapidly over the lower portion of the growth, but for a time there was a tendency to spreading at the upper border, causing some anxiety as to the possible effect on the eye should extension in that direction continue, this was finally checked, however, before any serious results occurred.

This treatment was continued till near the last of December, '99, at which time the ulceration was entirely healed, the induration and thickening almost gone and her general condition much improved. The purplish livid colour had changed to a brighter hue more like normal scar tissue; she was given some of the carbolized oil for local use at home, and the internal administration of the arsenic was continued.

About the middle of January a small nodule made its appearance a little way inside the left nostril, but one application of the ars. 2x, followed by the application of the oil for a few days caused its rapid disappearance.

The patient has reported about once a month since she was discharged, and up to the present time it seems to be a complete cure. The lip has regained its normal colour, and it is only on close inspection

tion that some small lines of cicatricial tissue can be seen. She says she is feeling better than for years, and works regularly at her old place in one of our large mills.

Three cases cured, or benefitted, do not prove the applicability of the treatment to all conditions of this general class, they do show its usefulness in some of these destructive lesions.

I regret that I have no personal experience to relate regarding its use in those cases of malignant ulceration of the breast, which we are too often called upon to treat, owing to the neglect of an early operation.

In one case of deep ulceration of the posterior lip of the cervix, involving the entire posterior vaginal fornix and threatening perforation of the cul-de-sac, it has seemed to retard the progress of the disease, and at times to almost promise some slight improvement, but this case is still under treatment, and it is too early to report any definite result.

This was one of those unfortunate cases where a radical operation was advised more than a year ago, but refused. The case went elsewhere, received so-called "local treatment," with the result of steady progress of the disease.

When she again came under observation the condition had gone too far to render operation advisable, and the "Mitchell treatment" was resorted to only as a palliative measure.—*New England Medical Gazette*, Feb. 1901.

Gleanings from Contemporary Literature.**AN ADDRESS ON CRANIOLOGY.**

*Delivered in the Theatre of the Royal College of Surgeons of England
on Feb. 14th, 1901*

BY N. C. MACNAMARA, F.R.C.S. ENG.,

CONSULTING SURGEON TO THE WESTMINSTER HOSPITAL AND TO THE
ROYAL WESTMINSTER OPHTHALMIC HOSPITAL.

GENTLEMEN,—We have assembled here to-day in order that we may commemorate the merits of John Hunter and such other persons whose labours have contributed to the extension of our knowledge in comparative anatomy, physiology, or surgery. Hunter's life in all its various aspects has been so frequently dwelt on in former orations delivered in this theatre that it is beyond my power to throw any fresh light on this subject. His fame is attributable to his having possessed an intense love of science, indomitable energy, and a self-reliant, manly character. If we turn to his portrait hanging on the walls of this theatre it would seem that at the time when this likeness was painted Hunter was engaged in the study of the craniology of man and anthropoid apes, for on the table before him there is an open volume and on its pages we see clearly drawn a human skull and the skull of a chimpanzee. Hunter is portrayed, pen in hand, in deep thought, having just turned away from the book he had been studying, and though his notes on comparative anatomy were unfortunately destroyed with his other manuscripts we can hardly doubt that craniology was a subject in which he was deeply interested or it would not have held so prominent a position in this famous picture. It would, therefore, seem that on an occasion such as the present we can do no higher honour to Hunter's memory and to that of some of the able men of science who have followed him than by endeavouring to give in as few words as possible a *resume* of their labours, with especial reference to the subject of craniology and the light it is capable of throwing on the prehistoric inhabitants of western Europe and of the evolution of the race of men to which we belong. One of the most brilliant and original thinkers who has occupied the presidential chair of this College, Sir William Lawrence in his ever-memorable lectures on the Natural History of Man delivered in this College in the year 1819, from his researches in comparative anatomy, foreshadowed the idea that man and apes were derived from common ancestors. Lawrence's opinions were received with a storm of adverse criticism. Mr. Abernethy, for instance, charged him with "propagating opinions detrimental to society and endeavouring to enforce them for the purpose of loosening those restraints on which the welfare of mankind depend." Time, however has proved that Lawrence was right, and in the course of lectures delivered in this theatre in February, 1899, Professor Keith, from a careful analysis of the maximum number of anatomical characters common to man and apes, arrived at the conclusion that they are derived from an identical

a kindred stock.. While admitting without reserve that man and apes are structurally almost identical, nevertheless, as pointed out by Professor Huxley in the year 1863, they differ very materially as regards the relative weight of their brains. The carcass of a full-grown gorilla is heavier than that of an average-sized European, but it¹ is doubtful whether a healthy adult European's brain ever weighed less than 32 ounces or the brain of the heaviest gorilla ever exceeded 20 ounces in weight.¹ Although at the present time there is this marked relative difference between the weight of the brain and the form of the skulls of Europeans and apes this was not always the case, for the calvaria of the earliest discovered human beings were in form not very far removed from those of contemporary anthropoid apes. This fact leads us to inquire into the nature of the conditions which have led to the increased capacity of the human cranium and to the vast superiority of man's intellectual endowments over those of all the other primates. If we turn to Hunter's preparations in our museum² we find among them some remarkable specimens which he describes as "compressed," "unsymmetrical" human crania which he believed were the result of premature consolidation of one or more of the sutures of the skull.³ Since Hunter's day various authorities have devoted much time to the subject of the abnormal closure of the cranial sutures in man: prominent among them are the names of the chief of England's craniologists, Dr. Thurnam, and Dr. Barnard Davis—the splendid collection of prehistoric and other skulls made by the latter gentleman are now in the possession of our College. From evidence of this nature we have come to learn that the size and form of the skull depends to a large extent on the growth of the bones of which it is formed along the lines of the various cranial sutures.

It is well known that the frontal bone, which forms the vault of the anterior part of the cranium in the young of man and apes, is divided by a suture, and so long as this line of growth, together with the coronal and other sutures by which the frontal is separated from surrounding bones, remains open, the fore part of the skull and with it the anterior fossæ which it encloses can expand. But if the frontal and the other anterior sutures of the cranium consolidate early in life the fore part of the skull cannot increase in capacity beyond the size it had reached in infancy. Professor Deneker⁴ in his work on the embryology and development of anthropoid apes has shown that in consequence of the early closure of the anterior sutures of the skull of these animals the fore part of their brain does not increase beyond the size it had attained at the end of the first year of life, but in man these sutures do not consolidate until a much later period, so that the anterior lobes of his brain are enabled to, and actually do, become far more perfectly

¹ *Man's Place in Nature*, by Professor T. Huxley, p. 103.

² College Catalogue, Nos. 135, 137, and 139.

³ Professor Virchow who has given much attention to this subject lays down the following law: "In the too early ossification of a suture of the skull the development of the cranium is arrested in the diameter perpendicular to that centre."

⁴ *Archives de Zoologie Experimentale et General*, tome troisième, année 1885.

developed than the corresponding lobes among apes; men of the same bulk have four times as much superficial brain surface as anthropoid apes.⁵ Whatever other functions the anterior lobes of the brain perform, their cortical nerve elements in conjunction with those of other lobes of the brain control, to a large extent, our higher intellectual faculties. If we study the collection of preparations of the brains of apes in our museum, it seems to me we shall arrive at a similar conclusion to that expressed by Professor Edinger, which is, that the gyri of the brain of man and of the anthropoid apes are similar in character, with the marked exception of those convolutions which enter into the formation of the frontal lobes. The superior and the middle gyri of these lobes in anthropoid apes are always much shorter than they are in the brains of average Europeans, and what is of especial importance is, that in the brains of anthropoid apes the inferior frontal gyri only exist in a rudimentary condition of development; this deficiency is very marked with respect to that area of the left inferior gyrus which contains the nerve elements which control our faculty of articulate language. It seems probable that the rudimentary condition of this gyrus in apes is therefore the anatomical expression of the inferiority of these animals to man in intelligence; our intellectual development depending on our possessing the faculty of speech.⁶ It may be, anthropoid apes having only rudimentary, if any, specialised nerve centre of speech, that the other parts of their anterior lobes have remained in a comparatively undeveloped condition; whereas the left inferior frontal lobe of man's brain having become highly specialised and with it his power of language, the other convolutions of his anterior lobes, which govern his intellectual faculties, have been stimulated to increased action, and in this way the characteristic expansion of the fore-brain has been evolved among all the more highly civilised races of the human family. But our contention is that the factors which govern the growth of the skull differ from those which develop the

5 Among anthropoid apes in consequence of the great size of their frontal sinuses and the roofs of the orbits rising more obliquely into the cranial cavity the anterior and the inferior walls of the anterior fossæ of their skulls intrude upon and lessen the capacity of this space, and therefore of the anterior lobes of the brain which are contained in these fossæ. Virchow states that "of all parts of the ape's head it is the brain that grows least," even "the largest ape keeps its baby brain." Although we have not sufficient data to fix the absolute duration of the life of anthropoid apes, it is doubtful if they, as a rule, attain the age at which man arrives at his full growth. It is, however, certain that the largest apes are perfectly developed when man is still in his youth, and that the ape's brain has reached perfection before the period of shedding its teeth, while in man it then takes its real first step to perfection. The *Cranial Affinities of Men and Apes*, by Professor R. Virchow, p. 26. Also *Journal of Anatomy and Physiology*, New Series, vol. xiii., p. 275.

6 The *Anatomy of the Central Nervous System of Man*, Professor Ludwig Edinger, M. D., translated from the fifth German edition by Professor W. S. Hall, 1899, p. 194. Professor D. J. Cunningham states that "one of the most remarkable characters of the cerebrum of the chimpanzee and orang is the total absence of the frontal and orbital opercula," or the pars triangularis which contains Broca's nerve centre for articulate language. See *Contributions to the Surface Anatomy of the Cerebral Hemisphere*, by Professor D. J. Cunningham, Dublin, 1892, p. 110.

brain, and that the imperfect evolution of the frontal lobes among anthropoid apes is to a large extent due to the premature ossification of that part of the skull which encloses the fore-brain. However this may be, the possession of fully-developed anterior lobes of the brain, especially of its left inferior gyrus, is the distinctive character of the central nervous system of all those families of mankind who possess well-developed intellectual capacities. On the other hand, if we compare the skull of an Englishman with that of one of the natives of Australia we see what a wide difference there is between the development of their frontal regions, and also as to the nature of the sutures of many of their skulls.⁷ We shall further discover from specimens in our museum that the inhabitants of western Europe in the later tertiary and early quaternary period, as regards the ossification and form, especially of the frontal region of their skulls, more closely resembled that of the chimpanzee than the race of men now inhabiting Europe.⁸

Since Hunter's and Lawrence's time considerable progress has been made in the science of geology and anthropology. Nevertheless, in our search for knowledge concerning the origin and development of pre-historic man in western Europe we are still hampered by the limited supply of his remains. It could hardly have been otherwise considering the perishable

7 Professor Huxley held that the organisation of the human brain had more to do with man's intellectual superiority than either its weight or size, and there can be no question that man having small heads are by no means necessarily wanting in mental capacity. But a well-developed frontal region is a characteristic feature of all the more highly civilised communities of the world, and among such people low intellectual endowments or even idiocy is found to be comparatively frequent in those with abnormally small frontal lobes. We agree fully with Professor Huxley that among all the known races of human beings the brain and its including case, the skull, grow together, and the former does not exercise an absolutely predominating influence over the development of the latter. But it is certain that if the anterior part of the skull becomes a shut box early in life it must control the subsequent size and development of the brain which it contains. Professor Welcker, who studied this subject in a thorough Teutonic spirit arrived at the conclusion that in European races the frontal suture remains open up to the adult period of life in one out of nine persons. Among African races it is not found open at the adult period of life in more than one in 150 persons; and among the aborigines of Australia no adult skull has yet been observed with an open frontal suture. The well-known French anatomist, Gratiolet, states as a result of his researches that "not only the growth of the brain ceases sooner in those races in which the sutures close early, but also that there is a difference between the higher and lower races as to the order in which the sutures are closed normally. In the latter the anterior sutures consolidate before the posterior, and in the higher races it is the reverse, the posterior sutures close earlier than the anterior." M. Gratiolet bases an argument for the greater perfectibility of the higher races upon these facts. On the other hand, Professor L. Edinger is disposed to agree with Professor Peris that not a few men of pre-eminent intellectual power have in early life been affected with slight hydrocephalus which having abnormally expanded their skulls, has then receded. The brain of such young people has been able to attain a greater capacity than it would have acquired had there been no hydrocephalus to expand the skull-cap. *The Anatomy of the Central Nervous System of Man* by L. Edinger, M.D.; translated from the fifth German edition by Professor W. S. Hall.

8 *The Origin and Character of the British People*, by N. C. Macnamara, p. 25.

nature of the human skeleton and the vast length of time, and the great geological changes which have occurred since man appeared in our part of the world. But we have additional evidence concerning the prehistoric inhabitants of this part of Europe, for they have left us some of their imperishable handiwork in the shape of flint and stone implements, which during the past century have been carefully studied in relation to the geological strata in which they were discovered, by Lord Avebury, Professor Boyd Dawkins, Professor Prestwich, Sir John Evans, the late Sir William Flower,⁹ together with many other English and foreign anthropologists. From the form and workmanship of these stone implements we are now able to classify, and assign them to the various periods in which they were manufactured by the early inhabitants of our part of the world.

Up to within recent times it was held that no human beings existed on the earth before the quaternary geological epoch, but in the year 1867 the Abbe Burgeois exhibited a collection of chipped flint weapons which he had discovered in a previously undisturbed tertiary formation; it was not however, until 1872 that these instruments were admitted to have been made by man or some other animal living previously to the commencement of the quaternary period. Precisely similar flint weapons have since been discovered in tertiary strata in various localities in Europe and in Asia. In the year 1894 Dr. Eugene Dubois found the upper part of a skull (calvaria) in close proximity to a femur and two molar teeth in a well-defined tertiary geological formation in the island of Java. Dr. Dubois was employed by the Dutch Government to examine and report on the fossil-bearing strata of Java, and while engaged on this work he discovered imbedded in a hard mass of tertiary tuffs the bones above referred to; he brought these fossils to Europe, and submitted them for examination to the leading anatomists of this and other countries. They concurred in the opinion that the femur was a human bone belonging to a man of a very low type; "and demonstrating the fact that while rendering its possessor capable of the bipedal mode of locomotion he still retained some vestiges of adaptation to an arboreal existence."¹⁰ There was a difference of opinion concerning the calvaria, for it was calculated that the capacity of this skull did not exceed 850 cubic centimetres, the capacity of the largest cranium of anthropoid apes being 600 cubic centimetres. Until the Java skull was

⁹ Sir William Henry Flower, K.C.B., F.R.S., died on July 1st, 1899; he was for some years the Conservator of the Museum of the Royal College of Surgeons of England, and the Council of the College unanimously passed the following resolution at their meeting on July 13th, 1899: The Council hereby express their deep regret at the death of Sir William Henry Flower, K.C.B., F.R.S., and their sincere sympathy with Lady Flower and the members of his family. The Council remember how much Sir William Flower, while conservator, did to advance the utility and reputation of the museum by the skilful discharge of his duties and by the eminent position which he won for himself among men of science, and they hereby record their grateful appreciation of his services to the College."

¹⁰ The Journal of Anatomy and Physiology, vol. xxxiii. New series, vol. xiii., p. 273.

found the earliest known human skulls had a cranial capacity of about 1220 cubic centimetres. After an exhaustive analysis of the anatomical characters of the Java calvaria as compared with the skulls of man and apes Professor Schwalbe has arrived at the conclusion that the Java skull, taking its capacity and form into consideration, "is on the border-line between that of man and anthropoid apes"; it is more closely allied to the skulls of the Neanderthal group of men than it is to the crania of the higher apes, but it is much nearer in form to the skulls of the chimpanzee than it is to the cranium of the average adult European of the present day. Nevertheless, from a study of the impressions of the convolutions of the brain on the interior of this calvaria it is shown that the inferior frontal convolutions are well marked and approach in form those of man; and although the superficies of this convolution is less than half that of the men of the present day it is double that of the largest brain of any known anthropoid ape.¹¹ This fact suggests that the Java man possessed in some slight degree the faculty of speech and that his intellectual capacity was higher than that of any of the anthropoid apes. The post-orbital index or marrowing of the Java skull is 19.3, as compared with the average of living Europeans, which is 12. In this measurement the Java skull comes nearer to the Neanderthal group than to that of anthropoid apes.

In the employing of skulls, which we believe to be the most reliable test of human races, we classify them under three heads according to the measurements of their cranial indices. In other words, the measurement of the greatest breadth of the cranium, expressed in percentage of its greatest length, is our guide as to the race to which an individual belongs from a craniological point of view. When the cranial index rises above 80 the head is called "brachycephalic," a broad head; when it falls below 75 the term "dolichocephalic" or long head is applied to it. Indices between 75 and 80 are characterised as "mesocephalic," intermediate heads.¹²

We have in our museum casts of two crania, and other bones, forming part of human skeletons which were found resting on a ridge of calcareous rock overlooking the river Orneou in the commune of Spy, Belgium. These remains were unearthed with great care and there is every reason to believe that they were originally deposited where they were discovered, being covered over with four well-defined beds of debris and clay, in which were found the bones of the rhinoceros and the mammoth, also flint weapons of the Mousterian epoch.¹³ One of these skulls has marked palæolithic¹⁴

11 The Brain-cast of *Pithecanthropus Erectus*, by Eug. Dubois, *Journal of Anatomy and Physiology*, New Series, vol. xiii.

12 Assuming the length of the cranium to be 100 the width is expressed as a fraction of it, and is known in the living subject as being the cephalic, and in the bare skull as the cranial index. For instance, if the greatest breadth of a skull is 15.2 centimetres and its length is 19 millimetre we multiply the breadth in this case 15.2 by 100 and divide the product by its length, 19 centimetres, which gives us the cephalic index 80.

13 The most superficial layer was 9.5 metres thick and was formed by debris which had fallen from the rock above. The second layer was three metres thick and formed of yellow argillaceous tuffs. The third layer was six metres thick,

characters, its brow ridges, like those of the higher apes and the Java skull are prominent and the forehead indicates the low type of human being of which this cranium formed a part. Its form, like that of all the other human inhabitants of Europe as yet discovered in the early geological strata of the quarternary (pre-glacial or inter-glacial) period, is of the long type, its sutures are simple and for the chief part are consolidated. We have another cast, presented to our museum by Professor Huxley, one of our most talented and earnest workers in the science of anthropology, taken from the Neanderthal cranium. This cranium was found with other portions of a human skeleton in a limestone cave near Dusseldorf. This cave was raised some 60 feet above the existing bed of the river, Dussel and its floor was covered to a depth of five feet by fluvial deposits beneath which these human remains were discovered. We have in our collection a skull of the characteristic palæolithic type, presented to the College by one of our former Presidents whose memory is treasured by all who knew him, Professor George Busk; it was found in a layer of brecciated talus under the north front of the Rock of Gibraltar. We have also a cast of the calvaria of one of this race found in county Sligo. Another skull of the same type was discovered at Bury St. Edmunds, with the remains of extinct animals and Mousterian flint weapons.¹⁵

The anterior surface of the lower jaw among the existing races of Europe projects to form the chin. Among apes the reverse is the case, for the anterior surface of their mandibles recede. The Marlarnaud and the Naulette mandibles, of which we have casts, are evidently those of human beings; they were found in geological formations (which also contained the bones of extinct species of animals and palæolithic flint weapons). These bones are distinctly ape-like in character, having receding anterior surfaces, and also the sockets of all the molars are equal in size. The bones of the legs of these pre-glacial or intraglacial inhabitants of Europe are of ape-like form, and together with the bones of their arms prove that they were a short powerful race of beings whose average stature did not exceed five feet. They are known as the Neanderthal group of men.

When the glaciers which had extended over the greater part of Europe moved northward the reindeer passed away with them from our part of the continent. These animals, which could easily be captured by man,

consisting of red clay in which were numerous Mousterian flints and the tusk of a mammoth. The fourth was yellow calcareous clay, immediately beneath which the human remains with bones of extinct animals were found.

14 The term "palæolithic" is employed to geological formations distinguished by containing the rudest shapes of human stone implements associated with the remains of mammals, some of which are entirely extinct while others have disappeared from the districts where their remains have been found. These deposits may be classed under the heads of alluvium, brick-earth, cavern-beds, calcareous tuff, and loess. *Class-book of Geology*, Sir A. Geikie, p. 361,

15 We possess accurate drawings and a description of this cranium. There can be no question that this was a genuine palæolithic skull and demonstrated the presence in the county of Suffolk of this race of human beings when England was still connected by land with France.

had roamed in vast herds over the surface of the country and had probably afforded the human inhabitants of that period living in western Europe an ample supply of food. The climate of our part of the world at the termination of the glacial period became such as we now experience. Britain was separated from France by sea, and fine rivers, containing numerous fish, filled the valleys of our land; the red deer, wild horse, and various fleet-footed animals abounded in the splendid forests which overspread the country. But these animals and the fish of our lakes and rivers were not easily captured, and the human inhabitants of western Europe were therefore compelled to exert their intellectual capacities to an extent not heretofore necessary in order to supply themselves with food and with the skins of animals for clothing. Man was able to overcome the difficulties he had to face, possessing an innate power by means of which (as already explained) his brain was able to develop and so meet the increased demand made upon it in the struggle for existence. That such was the case we judge from the discovery in geological formations of the post-glacial period of the skulls of men having the same physical type as those of the strictly palæolithic epoch of western Europe, but with increased brain capacity. These post-glacial human skulls indicate, in my opinion, a gradual transition in form from the ape-like characters of the previous period to a higher standard and distinctly greater brain capacity in the frontal region; this most important question, however, requires further study. With this improvement in the form of the human skull, the flint, stone, bone, and horn instruments made by the post glacial inhabitants of western Europe become more highly finished, indicating the possession of increasing intellectual power on the part of those who made them.

The Engis skull, of which we have a cast, presented to this College by Sir Charles Lyell, is a well-known example of a human cranium of the early neolithic¹⁶ or post-glacial period. Huxley, in his description of this skull, observes; "It takes us, at least, to the further side of the biological limit which separates the present geological epoch from that which preceded it; that is, from palæolithic times."¹⁷ The Borris and Eglisheim skulls probably belong to this period, their characters being similar to those of the Tilbury cranium described by Sir Richard Owen, of which we have casts in our museum. These and various other skulls found in geological formations of the time referred to all of the same type and lead us to believe that the inhabitants of Europe consisted, in the early neolithic period, of only one race, the descendants of the human beings who inhabi-

¹⁶ The term "neolithic" is used to signify that period in which the stone, bone, and horn implements made by man indicate a considerable advance in the arts of life beyond those discovered in the previous palæolithic epoch. In the neolithic period the remains of the mammoth, rhinoceros, and other prevalent extinct forms of the palæolithic series had almost, if not completely, disappeared from western Europe. The deposits in which neolithic remains are found consist of river gravels, cave floors, peat bogs, raised beaches, &c., &c.

¹⁷ *Man's Place in Nature*, by Professor Huxley, p. 120. For a description of the 'Borris' skull see S. Laing and Thomas H. Huxley's "*Prehistoric Remains of Caithness*."

ted. our part of the world during the previous or early palæolithic epoch. They had long (dolichocephalic) skulls, with slightly projecting supraorbital ridges, well-formed noses, and a fairly-developed frontal region as compared with the far more ancient Java and Neanderthal crania. Their lower jaws and the bones of their legs were less simion in character than those of their remote progenitors; they were a small race of beings. We find no metal weapons or instruments with their remains and we therefore conclude that they were ignorant of the use either of bronze or of iron, nor do they seem to have possessed domestic animals or to have had any knowledge of agriculture. This race of primitive inhabitants of western Europe are best known as the Iberians, and we may conveniently employ this term so long as it is understood to designate the Africo-European stock who were, so far as we know, the only human inhabitants of Europe in the later palæolithic times. It should be clearly understood that no *bona-fide* human remains belonging to the early palæolithic period have hitherto been discovered in western Europe which were not of the same type as those above described.

As we pass from the early to the mid-neolithic epoch, we come upon the remains of a race of men who, as regards their physical character and state of civilisation, essentially differ from the people above referred to. The stone implements found with their skeletons are beautifully formed, many of them being highly polished and having sharp cutting edges. A few of the purest bronze axe-heads have been discovered with these remains, and also the bones of domestic animals belonging to species indigenous to Asia but foreign to the palæolithic fauna of Europe. Lastly, we have evidence that these people were acquainted with agriculture and with the manufacture of sun-dried pottery. They paid great respect to their dead chiefs, burying their bodies in natural caves or in tombs formed of huge flagstones placed edgewise side by side with similar stones laid on the upright ones to form the roof of the building. These structures, the well-known long dolmens, have been found, built on precisely the same plan in Ireland, England, the greater part of Europe,¹⁸ the west of Asia, India, Arabia, and northern Africa. They were not only sepulchres for the dead but many of them also contained an altar, a place of mourning, and of offering, where intercession was made to the spirits of departed chiefs by their relations and tribesmen. The Rodmarton long dolmen or temple tomb (near Cirencester) affords us a good example of one of these structures; it is 180 feet in length and 70 feet broad. We have in our museum a fine human skull which was found in this dolmen with some well-polished stone implements. If we compare the skull with that of palæolithic man or with the skulls of the early neolithic human inhabitants of western Europe we are immediately struck by the marked difference that exists between them and the Rodmarton skull. Dr. Thurman's unique collection of crania may be seen

18 The construction of these dolmens wherever met with is so similar that we conclude they were the work of one race, or at least of one special confederacy of races.

in the Anatomical Museum, Cambridge ; these crania for the most part were unearthed by himself from various English long dolmens and barrows and they resemble in form, although they are of a higher type than, the skulls found in the caves of Cro-Magnon and Mentone ; they are identical in character with skulls found in the long dolmens of France and other countries of Europe. The cranial index, capacity, and other features of the bones of these skulls lead us to assign them all to one and the same race, of which the Cro-Magnon are probably some of the very earliest specimens as yet discovered in western Europe. The three Cro-Magnon and three Mentone skeletons were those of people some six feet four inches and upwards in stature, so that a race of giants in far distant times was no myth. Their cranial capacity was above that of average Europeans of the present day. From their physical conformation and from the remains of the animals found buried with them, which are of Asiatic species and from other evidence, we are led to the conclusion that the Cro-Magnon race represent the advance guard of the proto-Aryan human family, of which the Rodmarton¹⁹ and many other long dolmen skulls show a more advanced type. These people in far distant ages migrated from the east into western Europe and from thence spread into our islands ; southwards they passed into India, Persia and Arabia, Asia Minor and northern Africa. Over this vast area and far away in eastern Asia we find their remains with flint and stone implements of the early neolithic type, buried in long dolmens or barrows. The roots of many of the words used by this ancient people exist in most of the languages now spoken in Europe, and their religious sentiments, myths, and above all their racial mental and physical characters, as portrayed in the Rig-Veda and on the ancient monuments of Egypt, are pronounced features in the existing Teutonic and Anglo-Saxon people. From the form of the crania found in many of these long dolmens we know that this tall, fair, handsome, long-skulled race intermarried with the pre-existing short dark Iberian inhabitants of Europe. The fair tall race probably did not at any time, unless in the north of Europe, form a large proportion of the population ; they were a dominating, fighting, and priestly caste who compelled the primitive small, dark (Iberian) inhabitants of western Europe to work as their slaves.

During the neolithic era, while the descendants of the proto-Aryan stock were slowly feeling their way from the East along the valley of the Danube into Europe, a very different race was passing from Northern Asia into the Baltic provinces. These people formed settlements on the islands of Denmark and westward as far as the north of Ireland. They were the first of the broad-skulled races of the human family who had entered Europe. Their skulls were brachycephalic in form with broad faces and noses, the latter being deeply concave at the base. Their remains are found in the islands of Denmark, especially that of Møen, also in Yorkshire and county Antrim, in which localities their descendants may still be recognised by their physical characters. These people belong to the stone age of Europe, and

by comparing their skulls with those of the Rodmarton or Cro-Magnon crania we see the great difference in form of the prehistoric long and the broad-headed races of men. Until the close of the neolithic epoch there were, therefore, three pure races who formed the sole human inhabitants of Europe with the exception of those who were the outcome of the intermarriage of the people of these three races with one another.

Passing from the neolithic to the succeeding bronze age we find that Europe, including our islands, was overrun by a small, olive-coloured, broad-skulled people having characteristic Mongolian features. These were the lake dwellers of Switzerland and other parts of Europe. They were traders in bronze, and probably, as Professor G. Mortillet and other authorities hold, they gradually replaced stone, horn, and bone with bronze instruments and weapons, effecting in this way a great revolution in the social and industrial habits of the pre-existing inhabitants of western Europe. In these far distant times deep mining operations were out of the question. Superficial copper ores were abundant in most parts of Europe and Asia, but alluvial tin was extremely scarce on our continent; and it is still only found in large quantities in south-eastern Asia. Cornwall, the Scilly islands, the south of Ireland, and some few other places also contained superficial ores of tin. It seems probable that the Mongolians inhabiting the highlands of south-eastern Tibet long before the commencement of the bronze age in Europe spread into Burma, the Malay Peninsula, and Cochin China, and there acquired the art of mixing copper and tin in such proportions as to form bronze, the weapons and instruments which they manufactured of this metal being a ready and profitable source of barter in Europe.²⁰ Together with the broad skulls and other remains of these people we find in the debris of the lake dwellings numerous ornaments made of jade, nephrite, and chloromelanite, minerals found in large quantities in south-eastern Asia but not in Europe; and, lastly, vases on which are depicted people in oriental costume and instruments used only by the south-eastern. Tibetans have been discovered in connexion with the remains of the lake-dwellers and the round or oval barrows of Europe. These people, as a rule, cremated the bodies of their dead, and numerous cinerary urns containing their remains are found scattered over the Wiltshire and other ranges of hills in the south of England. Some of their skeletons, however, have been discovered in the round barrows which are so numerous in many parts of England, Ireland, and throughout Europe and Asia. With these remains bronze instruments have been found indicating, like the stone implements of palæolithic man, various stages of excellency in workmanship. One of the finest skulls in our museum was taken from a round barrow at Codford, Wilts. The form of this brachycephalic skull, together with its nasal bones and orbits, are characteristic of the southern Mongolian race, well known to us as the Gurkhas, and Burmese of our Indian empire; a lazy, bright, rollicking, fighting people, intensely superstitious and home-loving—"the Irish of the East" as they have been aptly called. In the course of many centuries the Mongolian people of western Europe have become absorbed into the pre-existing Ibero-Aryan population and a cross-breed has resulted, and from this stock the ancient British people of our islands were derived. Their skulls are mesocephalic (a combination of the long and broad skull) and are amply represented in our museum, the cephalic indices being about 78.²¹ Subsequently to the bronze age the ancient Britons were well-nigh exter-

20 These people without doubt made bronze weapons both in the south of England and of Ireland, for clay moulds have been found there in which weapons of the early bronze period in Europe were cast.

21 The Mongolian cephalic index is from 80 upwards and that of the Ibero-Aryan is 75 and below that figure.

minated in England by Teutonic races who invaded our country from the north of Europe, the Anglo-Saxons taking the place of the pre-existing ancient British population of England and Scotland. Nevertheless, in some districts of England such as North Bedfordshire, a number of the descendants of the ancient British stock continue to flourish up to the present day, as also in the greater part of South Wales, much of Cornwall, and the south and west of Ireland, the upper classes in Ireland being clearly derived from the ancient Aryan stock who passed from Gallia into that country during the neolithic period.

We possess the measurements of the heads of some 25,000,000 of the present inhabitants of Europe and the United States of America. From these measurements we learn that a large proportion of the people now dwelling in the countries bordering on the Mediterranean Sea are a short, brunette, long-skulled race, descended, we believe, from those who, from the form of their skulls and other physical characters occupied that part of Europe and the north of Africa in far distant ages—the Iberian race. Scandinavia and North Germany are inhabited by a tall, fair, long-skulled people derived from the proto-Aryan races who settled in that part of our continent in the neolithic epoch. A vast triangle having its base in eastern Russia and its apex on the Atlantic in south-western France is inhabited by a broad-skulled people derived from Mongoloid or Turanian ancestors. We do not for a moment affirm that these races, as such, have remained pure, far from it, but the results of the measurements of the heads of a great number of the existing inhabitants of Europe point to the conclusions above indicated; and this idea is confirmed by the indices of the splendid collection of crania which occupy so large a space in the museum of this college—a collection which was commenced by John Hunter and upon which a great amount of time and labour has been spent in describing and classifying the skulls which it contains; a work which in my opinion should be completed up to the end of the past century.

The characteristic physical type of palæolithic man may be still recognised among the inhabitants of western Europe, although their skulls have grown more capacious, especially in the frontal region. This change in the form of the cranium marks a corresponding advance in the capacity and organisation of the brain and consequently of the intellectual ability of man; it is in truth evidence of his inherent power to overcome the demand made on his mental capacity in order to cope successfully with his ever-increasing struggle for existence, consequent on the growth in number of his fellow-creatures and the more complicated social conditions of his surroundings. Doubtless the form of skull of a large proportion of the inhabitants of our islands indicates a cross-breed formed by the intermarriage of the long and broad-skulled families of man who in distant ages met and intermarried in western Europe, thereby improving the stock of their descendants. Races of men such as the natives of Australia who have remained in an unchanged environment and without intermarriage with other people have made but little progress in their intellectual capacity, the form of their skulls continuing of the same type as those possessed by the palæolithic inhabitants of Europe.

The same causes to which we have referred, acting for long periods of time on people of the same race, has led not only to the hereditary transmission of their physical characters, such as those existing respectively among the northern, central, and southern inhabitants of Europe, but have also developed specialised areas of nerve structure in their brains, by means of which they have come to think, feel, and reason alike. In this way we are able to comprehend the source and the meaning of large bodies of men belonging to the same race being frequently moved to take common action on matters affecting the well-being of their race; they possess in fact, like

innate sentiments although separated from one another by great distances and living under diverse climates and environment. Their emotions and ideals harmonise because their progenitors existed for many ages under similar external conditions and consequently developed like specialised nerve-centres, which have been transmitted together with their physical characters to their successors and become crystallised in their laws and reflected in their conceptions of religion as well as in their social institutions.²²

In illustration of our meaning we may refer to those revolting pages of history during which Belgium and the Netherlands passed under the dominion of Spain; the Iberian dominating for the time being over a thoroughly Teutonic race. Or we may contrast the existing condition of the Iberian population of South America with the Teutonic Anglo-Saxon inhabitants of the United States or between the latter and the negro population of America.

We have a chart here which shows the result of the recent general election held in this country: the question at issue was one in which the whole of the people in Great Britain were deeply interested. It is remarkable what a large proportion of the inhabitants of England and of Scotland, mainly of Anglo-Saxon origin, voted together on this subject; whereas a contrary opinion regarding this same question was held by the greater proportion of the people of Ireland, and to a large extent by the Welsh, most of whom are derived from Ibero-Mongolian ancestors. It is difficult to account for the diversity in the sentiments of the people above referred to unless we consider it due to their racial mental qualities.²³ Environment has doubtless played an important part in the evolution of these people, but their inherited racial character has had more to do with the position which the Anglo-Saxon race has gained in the world than the mineral wealth, climate, or protection afforded us by our seagirt coast.

The environment under which even a few generations of men exist would seem capable of influencing the structure of their central nervous system, as illustrated by comparing the mental qualities of our rural and urban population. The conditions under which the city-bred person, child and man, lives engender in the course of a few generations an unstable state of nerve structure, resulting in an excitable character, which if carried beyond a certain point leads to unsoundness of mind and may account for the increasing number of lunatics in this and the other large cities of Europe. General Sir Redvers Buller again in speaking of the soldiers under his command in South Africa, refers to the fact that our city-born men have imperfect sight compared with men reared in the open plains of the Transvaal, thus affording us another example of the effects of environment on the race.²⁴ These are a few of the many interesting and important

22 *The Origin and Character of the British People*, by N. C. Macnamara, p. 192. See also the *Westminster Review*, December, 1900, p. 634.

23 This idea is confirmed by the result of the elections that have lately taken place in Canada and the United States of America. "The younger branch of our Anglo-Saxon race, forming as they do by far the larger proportion of the inhabitants of these vast and flourishing dominions, had to solve a similar question to that placed before the people of Great Britain, and they have responded by a vast majority to this call on precisely the same lines as those followed by Englishmen, moved, we believe, by common racial inherent sentiments."

24 Sir Redvers Buller in one of his speeches is reported to have stated that: "In the first instance many of our men are city born, and England is not a very large country. We went out to a region where the principal number of our enemies were born in a very open country, a very large country, and it is not untrue to say that practically the vision, the ordinary sight, of our enemy was two miles at least further than the average sight of the English who were fighting against them. That is a matter of actual fact. An ordinary Dutchman or African can see a man coming towards him two miles before the man approaching can detect him."

subjects which arise in connexion with the study of anthropology including craniology ; and the contents of our museum and library offer unrivalled opportunities to the student seeking for knowledge in those branches of science.

In conclusion, as already stated, much of Hunter's reputation was founded on the result of his labours in those branches of science which tend to elucidate man's nature ; and during the past century a succession of English surgeons have carried on the work commenced by our great master, enriching our museum and endeavouring to make this College, not only an examining and licensing body, but, what it certainly should be, an Imperial Institution for the cultivation and diffusion of those departments of knowledge which bear on the art and science of surgery. The ideas entertained by John Hunter's immediate successors on this subject were ably stated by Sir William Lawrence in his lectures already referred to. He observes that "our own individual credit, and the dignity, honour, and reputation of our body, which we are bound to maintain, demand that surgeons should not be behind any other class in the possession either of the cultivation of branches of knowledge directly connected with surgery or in any of the collateral pursuits less immediately attached to it. It is only in reference to such views and objects that the Hunterian collection could have been accepted or can be of any use to this College." Hunter would, if he had still been with us, have thrown all his indomitable energies into the successful working of such an institution, and amidst the turmoil, strife, and competition going on around him would, as we see him in this picture, have been engaged in the earnest, accurate, patient study of nature. It remains for our younger members to emulate the example set them by John Hunter and by such service to secure for themselves lasting satisfaction, and beyond that add to the real dignity and utility of their College and their profession.—*Lancet*, Feb. 16, 1901.

Acknowledgments.

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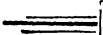
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[No. 4.]

EXPERIMENTAL STUDY OF CALOMEL.

By Dr. P. Jousset.

(Translated from *L'Art Medical* for March, 1901.)

THE eminently favorable therapeutic action of very minute doses of Calomel induced us to study the action of this medicine on healthy organisms. The rabbit is the animal we used in our experiments. Here follows the report of three experiments.

Rabbit No. 1.—We injected into a rabbit weighing 2 kg., 0. gr. 13 centigr. of calomel suspended in oil. The animal died at the end of 48 hours, presenting a relative subnormal temperature of 38°C., the liver weighed 80 grammes.

Liver.—Interrupted (irregular) tumefaction of the cells; inequality of coloration of the nuclei which had disappeared and were replaced by colored grains.

Catarrh, at the beginning, of the large biliary ducts. New ductules. Incipient peri-biliary infiltration.

Rabbit No. 2.—We injected into this rabbit weighing 3 kg., 0. gr. 035 mgr. of calomel suspended in oil. The animal died in 48 hours. Temp. was subnormal. No albumen in the urine. The liver weighed 95 grs.

Liver.—Intense and general congestion. Incipient infiltration around the large biliary ducts, one of which contained blood.

No lesions of the biliary epithelium. Atrophy and want of clearness of the hepatic cells. The nuclei were easily colored.

Kidneys.—Moderate congestion of the medullary substance. The calyx healthy, containing mucus and desquamated but normal cellules. No alteration of the glomerules nor of their vessels. Loss of power of fixing coloring matter of a certain number of nuclei of the cellules of the tubules, the protoplasm of which was emulsified.

Rabbit No 3. This animal survived 29 hours. It received in all about 0. gr. 45 centigr. of calomel by repeated injections in fractional doses.

At the autopsy the liver weighed 60 gr., and was very congested. The spleen was very small. Kidneys hypertrophied. The lungs presented an engorgement of the inferior and of the middle lobe. When cut their surface was dark red; examined by scraping, the pulmonary juice did not present any pneumococcus but only isolated cocci. The left ventricle of the heart hypertrophied; blood clots in the auricles and in the right ventricle; a pale clot adherent to the tricuspid valve.

Lungs. Great congestion; capillaries very much dilated; hæmorrhages in a large number of alveoli, in these last desquamated cellules, the large cells oval or polyhedric, enclosing from one to three nuclei, the protoplasm charged with blood pigment; granular degeneration of the alveolar epithelium.

At the level of the inferior lobe, lesions of recent typical broncho-pneumonia, in the form of round nodules or of irregular reticular patches; in the bronchi of these islets some cellules with fine granules.

Liver.—General congestion, but chiefly in the portal spaces and in their vicinity. Proliferation of biliary epithelium; very clear new canalicules (ducts); incipient discrete peri-biliary infiltration. The portal spaces appeared to be the seat of slight sclerosis. Some fatty granules (osmic acid).

Kidneys.—General congestion attacking the glomerules. Some small patches of interstitial hæmorrhage. Granulo-vacuolar degeneration sufficiently advanced, with hyaline cylinders and granules in the convoluted tubules. Granular exudation in the distended capsules of Bowman. No fatty degeneration (osmic acid).

The following is the result of the histological examination by M. Lefas, and his remarks thereon :

"Repeated hypodermic injections of small doses in animals, in the rabbit for example, brings on death at the end of a variable time. At the autopsy, lesions are found in them the nature of which may be guessed by the naked eye, but which the microscope reveals in all their details, and permits of comparing them with lesions that are already known and classified.

"The alterations in the liver are similar to the incipient infectious *cirrhosis* of biliary origin. This last may be summed up in the fact that there exist irritative inflammatory lesions of the cells of the lining of intra-hepatic biliary ductules, of those which course between the intercellular spaces (ultimate canalicules), as of those which follow the preceding and occupy the elementary conjunctive spaces constituting the fissures of Kiernan. If the irritation of the biliary epithelium is prolonged for a certain time it is continued to the neighbouring connective tissue which reacts by proliferating. One may say then that here is the origin of biliary *cirrhosis*.

Concurrently with these lesions of the biliary ducts and their neighbouring connective tissue there always exist alterations, in general moderate, of the hepatic cells themselves, consisting in a granular state and in the multiplication of the nuclei of the cells.

"This *cirrhosis* is said to be infectious because it frequently occurs in the course of diverse microbial states, without our being able to say at the present moment what is the respective rôle played in the pathogenesis of the lesions by the microbe itself or by the products of its secretions. Meantime, there is, on just grounds, more and more, a tendency to dispossess the microbe of the benefit of its toxins. The lesions obtained by means of mineral salts, of calomel as in the case with which we are occupied, goes to the support of this manner of viewing the subject.

"What is the mode of action of the poison in the last case ? Does it act directly on the cells of the biliary canals by a sort of election ? or better still, is it an indirect path to reach the canals ?

"It appears very difficult to explain a special elective action

of calomel upon such or such order of cells of a given organ, more especially as this election is not real, and that the great hepatic cells are injured concurrently with those of the biliary canals.

"A more satisfactory explanation at once springs up if we remember one of the essential functions of the hepatic cells, the *antitoxic function*. The hepatic cell exercises a veritable destructive action on several poisons organic, mineral, and other. To give only one example: We know that alcohol finds its action neutralized in the liver, and it is for this reason that lesions of alcoholic origin are so frequent in this organ; the hepatic cell ceases to discharge its antitoxic function either through material (organic) or biological (functional) disturbance, and this explains the production of delirium or at least of certain deliriums of alcoholics.

"Once neutralized by the agency of the hepatic cell, the poisons are eliminated by two secretions, urinary and biliary. If the liver is not able to discharge its antitoxic rôle, or only discharges it but imperfectly on account of alteration in its cells, the poisons in question are capable of producing lesions in the renal filter and in the biliary passages.

"This is just what we have found realized in poisoning by calomel. We have considered the hepatic lesions; we now examine the changes in the kidney.

"These last are related histologically to those which characterize subacute glomerulo-nephritis of which a type has been realized experimentally in slow poisoning by cantharidine (Cornil and Brault), and which are clinically found in a great number of infectious diseases. They consist in granulo-vascular and granulo-fatty degeneration of the cells of the tubes of the kidney, and in congestion to the extent of producing capillary hæmorrhages. These changes are parenchymatous, and the connective tissue of the kidney does not appear to participate in them.

"It remains now to examine the pulmonary lesions determined by calomel. These are very interesting, and are of two orders: One consisting in the desquamation of the alveolar epithelium with congestion and capillary hæmorrhages; this is *epithelial pneumonia* with congestion comparable to that of cardiac lung (Ducellier). The second consist in *broncho-pneumonia* comparable to that of

infectious diseases (measles, influenza, typhoid fever, &c.) These changes are realized in the following manner :

"The congestion is active, not passive as that of cardiac lung to which it resembles histologically ; this active congestion is frequent in poisonings. We have seen it before in what concerns the kidney : its intensity in the pulmonary capillaries is explained in the same manner, as the epithelial and broncho-pulmonary apparatus is an important path of elimination of toxic products introduced into the circulation ; the presence of these last in the blood capillaries explains also the hæmorrhages that have been observed.

"In poisoning by corrosive sublimate, we have found lesions which it is interesting to cite in conclusion. These are alterations of the blood itself, of inflammatory lesions of the trachea and of the bronchi even of their last ramifications, and finally a granulo-fatty state of the epithelium of the kidney."

Thus the hepatic lesions produced by calomel well explains, after the law of similitude, the beneficial effects of this salt of mercury in the treatment of cirrhosis. That which causes cirrhosis cures it, to follow the adage of Hippocrates, that which produces strangury in healthy man cures strangury in the diseased man.

As regards the lesions produced in the kidneys and in the lungs, they may serve as the basis of therapeutic indications which clinical experience has not yet sufficiently determined.

[The experiments narrated above are very important as revealing the action of Calomel, a drug which has been very nearly abandoned by our school,—an action which has led to most important therapeutic indications. It would have been well if Dr. Jousset had given the seats of the hypodermic injections, and the weight of the third rabbit. The seats of injection would probably have explained why in the first case the liver only was affected, in the second the liver and the kidneys, in the third the liver, kidneys, and lungs. The weight of the third rabbit would have given us some idea of its ratio to that of the liver.

According to M. Lefas there was no alteration in the connective tissue of the kidneys, though there was much in that of the liver. What would have been the case if the action of the drug could be prolonged, remains to be determined. We suspect a similar cirrhosis would take place in the kidneys as in the liver under its continued action.—ED., *Cal. J. Med.*]

HEREDITY.

BY DR. HEM CHANDRA RAY CHAUDHURI, L.M.S.

THE word heredity is derived from Latin *hereditas* which comes from *heres*, an heir. It means the tendency of each animal and plant to resemble its parents in all essential characters, so as to be of the same species, and even variety, as they are, though minute differences are certain to arise.

Goethe in his *Metamorphosis of Animals*, published in 1819, expresses the idea thus:—

“All members develop themselves according to eternal laws,
And the strangest form in secret presents the primitive type.
Form, therefore, determines the animal's way of life,
And in turn the way of life powerfully reacts upon all form.
Thus the orderly growth of form is seen to hold
Whilst yielding to change from externally acting causes.”

Haeckel in his *Histoy of Creation* says:—“Heredity is usually only taken notice of and discussed in cases relating to some special peculiarity, which appears for the first time in a human individual without having been inherited and then it is transmitted to his descendants. It shows itself in a specially striking manner, in the case of certain diseases and in unusual and irregular (monstrous) deviations from the usual formation of the body.”

The Spanish family with six fingers, the porcupine men of the Lambert family, and the descendants of the tailless Jena bull are cited as instances. In *Nature*, November 1, 1883, Mr. E.B. Poulton showed that the strength of heredity was such in cats with an abnormal number of toes that between 1879 and 1883 the peculiarity had been traced through eight successive generations.

Herbert Spencer in his *Principles of Biology* says:—“Some of the best illustrations of functional heredity are furnished by the mental characteristics of the human race.” Cases are not wanting to trace heredity in genius. It is said that in the family of Bach, a celebrated musician of Germany, there have been no less than twenty-two eminent musicians. Evidence also comes from the modern race horses. Darby Arabian is supposed to be the progenitor of the modern race horses in England. Dr. Thomas Oliver in his lecture delivered in the Newcastle-upon-Tyne Royal Infirmary says: “It is an interesting fact that nearly every winner of the great races last year was a descendant of St. Simon

who, although he never competed in the Derby, was yet the better horse, for he beat the Derby winner of his year."

Heredity of diseases, as phthisis, diabetes, insanity, syphilis, etc., is taken as a demonstrated fact. Mental diseases and diseases of the lungs are believed to visit the progeny of the sufferers. Physiological and pathological inheritances of all forms are believed to possess the power of transmission to descendants.

On the other hand there are facts, concerning reversion. Atavism in biology means the reversion of a descendant to some peculiarity of a more or less remote ancestor. Pathologically, it signifies the recurrence of a disease from which a more or less remote ancestor suffered, but which has not appeared in the intermediate generations. With regard to physiological atavism many examples are cited. The appearance of singular dark stripes in horses similar to those of Zebras and Quaggas is an instance. Another among flowers is Peloria, a reversion of wild yellow toad-flax (*Lineria Vulgaris*), which has dragon mouthed yellow flowers, containing two long and two short stamens. This Peloria is funnel-shaped and composed of five individual and equal sections with five corresponding stamens.

Another example of atavism may be shown in the case of a certain peculiar kind of fruit, which has been observed by our family, produced in a garden at Tangra, in the suburb of Calcutta. The singularity consisted in the production of a peculiar fruit and of *anona squamosa* (*sharifa*) in the same tree. Every year two or three fruits of the kind used to be associated with many custard apples. The external appearance was like a small fruit of *artocarpus integrifolia* (*Kanthal*), not bigger than six inches in length. In the inside separate dissepiments contained an individually well developed flake, in which a small seed like that of *anona squamosa* or *anona reticulata* existed. Each flake was surrounded by a pulpy mass. The taste was rather saltish like the pulp of *anona reticulata* (*nona*) and not sweet like that of *anona squamosa* (*sharifa*). The peculiar appearance of the fruit was characteristic. It may suggest that both *anona reticulata* and *squamosa* might have descended from a parent species allied to this, though the *a. squamosa* is decidedly of better taste than the *a. reticulata*. Among botanists it is believed that both *reticulata* and *squamosa* are naturalised from

the West Indies or the adjacent places. The quality of squamosa produced in India is far better than in the parent country.

Many words have been invented to denote the different forms of development. Homogenesis means similarity in the different stages of development between parent and progeny. Xerogenesis is dissimilarity in the stages of development between them. M. Milne Edwards used Xenogenesis to convey the idea of development quite unlike the parents. Professor Huxley in his presidential address in the British Association for the Advancement of Science, in 1870, remarked that the proper term to convey the idea of dissimilarity of development between parent and progeny should be heterogenesis, but it unfortunately denotes some other kind of development. Heterogenesis is a name given by Herbert Spencer to what Owen calls metagenesis or alteration of generation. According to Huxley it should mean that kind of generation in which the offspring is altogether and permanently unlike the parent. It was believed that tapeworm is a form of xenogenesis, but subsequently the idea has been disproved. Huxley mentions that corns and warts undergo that kind of development.

Before proceeding to examine these theories concerning heredity we should take into consideration certain facts in relation to impregnation. It is well known among agriculturists and horticulturists that ripe and undiseased seeds can only germinate. In man, the spermatozoa and ovum must be of those characters to be fit for impregnation. Certain preliminary changes take place in the ovum before impregnation. These changes alone are not sufficient to produce offspring in mammals, unless the ovum comes in contact with mature and healthy spermatozoa. Among vertebrata, sexual or amphigonic propagation takes place. Parthenogenesis or virginal reproduction can be found among certain invertebrata, as bees, crabs, etc. After impregnation the embryo acquires only nutrition from mother by the supply of blood. In mammals, it is effected through the placenta. Properly speaking, impregnation can alone transmit heredity, nutrition cannot. The limit between impregnation and the subsequent segmentation is the distinction between hereditary and acquired characters. The life of a man, therefore, for our examination, should be divided into pre-natal and post-natal

periods, that is, when he is in the embryonic state and subsequently when he is born. The pre-natal, then again, is divided into stages of impregnation and formation. Though both impregnation and formation depend, on the supply of nutrition, yet it can be said that formation depends on nutrition alone. Impregnation is due more to vital energy than to nutrition. For this reason, impregnation, being the first step in embryonic life, remains distinct from subsequent formation. If I may be allowed to use the idea of corpusculation, in the formation of an atom, as recently investigated by Prof. J. Thomson, I will place the two corpuscles spermatozoa and ovum as distinctive bodies before the formation of an atom, the embryo, in its first stage. The genesis of life from the mixture of the latent energies of the spermatozoa and ovum, constitutes first corpusculation or impregnation. A physiological atom being formed it requires expansion or development from nutrition. For the purpose of making a distinction between impregnation and the subsequent formation, the two words have been artificially differentiated. The pre-natal and the post-natal stages may be stated thus :

1. Impregnation } —Pre-natal stage.
2. Formation }
3. Development—Post-natal stage.

Again,

1. Impregnation—Hereditary forms.
2. Formation }
- and }
3. Development } —Acquired forms.

The distinction between formation and development is made for convenience. Both of them are stages of development, the one is pre-natal and the other is post-natal. Again, it may be said that the life of a man subsequent to birth is not a stage of development only. It is a combination of development and decay. For the explanation and determination of hereditary and acquired characters this classification serves our purpose. As our knowledge progresses a better order may be suggested. It is a well known fact that the post-natal period, comprising development and decay of physical powers, does not necessarily mean the growth and loss of mental activity. The decay of the

functions of the brain, which is the organ of thought, ensues, if at all, at a late stage of human life, that is, in extreme old age.

Whether any change of structure is possible during the process of formation will be considered elsewhere. The physiological scope of hereditary transmission is the first consideration. The impression of vital energy and certain characters can be transmitted by impregnation. My observation has confirmed the idea that only external structural peculiarities are conveyed from parents to progeny. The subsequent stage of formation, which depends on nutrition from mother, adds generally to the strength of those external structures. Impregnation marks the distinctive appearance of face as coming from parents. Formation is useful in the evolution of sex, bearing no resemblance to the parents. I have said that the province of impregnation is to transmit external formation from parents to children. The internal structures including the formation of the brain are never inherited. Malformation in external structure may be inherited but malformation of internal structure has never been transmitted. Malposition and transposition of viscera do not come from parents to offsprings.

A few mental derangements are considered physiological abnormalities. It is often said that they are inherited. As far as my knowledge goes, I am obliged to say that mental development of children has not sufficiently been observed so as to arrive at a definite conclusion. Idiocy, of all the mental affections, has the greatest chance of being inherited. I know of several instances where it has not been the case. Unless a child is deranged from his birth inheriting the disease from its parents no unmistakable proof can be given. A long period of incubation cannot be allowed for the development of any abnormality.

The stage of formation, which depends on nutrition, can acquire certain abnormalities *de novo*. The first acquirement of any monstrosity proves that it is not due to impregnation. The case of the Jena bull may be cited as an instance. On account of an accident the tail of the bull was severed. Most of its issues were tailless. The acquired character during the process of development was transmitted. Formation is nothing but development in the pre-natal period.

In a Spanish family, a man acquired six fingers and toes.

Except his youngest child, all others possessed the same character. The youngest, for this reason, was mistakenly kept unrecognised as his son. In one of my neighbours, a mother acquired the peculiarity of having six fingers. She could not transmit it to all her children. Some of her offspring down to two generations, showed the abnormality. In the third it disappeared. The sudden appearance and disappearance prove that the character was acquired,

The porcupine men of the Lambert family who lived in London in the eighteenth century, was celebrated for their extra epidermal growth. Edward Lambert who first acquired the monstrosity was born in 1717. His whole body was covered with a horny substance, about an inch thick, which rose in the form of thorn-shaped and scale-like processes more than an inch long, like porcupine. This abnormality was transmitted to his sons and grandsons but not to his grand-daughters.

With regard to monstrosities Darwin says :— “It is commonly assumed, perhaps from monstrosities affecting the embryo at a very early period, that slight variations or individual differences necessarily appear at an equally early period. We have little evidence on this head, but what we have certainly points the other way ; for it is notorious that breeders of cattle, horses and various fancy animals, cannot positively tell, until sometime after birth, what the merits or form of their young animals will turn out. We see this plainly in our children ; we cannot tell whether a child will be tall or short, or what its precise features will be. The cause may have acted, and I believe generally has acted, on one or both parents before reproduction. It deserves notice that it is of no importance to a very young animal, as long as it remains in its mother's womb or in the egg, or as long as it is nourished and protected by its parent, whether most of its characters are acquired a little earlier or later in life. It would not signify for instance, to a bird which obtained its food by having a much curved beak, whether or not whilst young it possessed a beak of this shape, as long as it was fed by its parents.”

According to the statement of Darwin, we cannot arrive at any precise conclusion whether these acquired characters are transmitted by latent impressions from unaffected parents, though

he believes such transmission. In the case of the bull in Jena, the acquired character in advanced life was transmitted to its issues. The animal received the impression which blended with other physiological characters. I have seen bulls and cows which have lost their tails from an attack of small-pox did not transmit this peculiarity. The singular character of the Jena bull has been acquired during the process of development in the post-natal period. Other malformations have been observed to be also acquired. The latent transmission of hereditary influence from parents by impregnation is distinctly far-fetched when those characters do not exist among the parents. It will not be easy to imagine the latent impression of porcupine appearance with regard to the parents of Edward Lambert when they did not possess that character. So it is the case with the first possession of an extra finger or toe. It is said that mental impression with regard to form is transmitted to children during the enjoyment of conjugal right of parents. Authentic reports are wanting to establish any definite proposition. I will take it into consideration hereafter. The claim of father and mother to transmit inherited and acquired faculties to children though difficult to settle, cannot be trifled with.

It is extremely difficult to ascertain the respective dues of father and mother in the hereditary or acquired transmission. It is my belief that in the majority of cases the transmission of normal characters is from the side of mother. Boys generally resemble their maternal uncle and daughters their father. This is observed among Hindus and Mahomedans. The notion of such descent is conveyed by the oft used phrase *বড়ান্না মা'তুলঃক্রম* that is, men resemble their maternal uncles. On the other hand, with Eurasians the girls resemble their mother and boys their father. My limited experience of European families does not allow of any generalisation.

The face often indicates the respective shares of the parents in the offspring. In the application for maintenance of a woman and her son Noor Ahmad, against Haji Noor Mahamad Zakeria, the maintenance was allowed by Maulvi Abdul Jubbar, the Magistrate of that time in the Calcutta Police Court. The face of the son had a striking resemblance to that of the father. The father possessed a peculiar long face, a long nose, with tall thin slender

figure, which could not be mistaken if once seen. The structure of the face and of the whole body had a unique appearance. Noor Ahmad resembled his father so strongly that it could be easily observed that mathematical proportion existed between them, particularly with regard to their face.

Homogeneity between father and son are rather rare, as in the aforesaid instance.

In a certain family, a father has four sons and two daughters. The sons, except the last one, resemble their maternal uncle. The last boy has features which indicates affinity of structure with his grandfather. The father is unlike his father but the last son is supposed to have leapt over in the order of reversion.

The cause of atavism is generally traced to heredity. It is said to be transmitted during impregnation. A latent hereditary impression is a far-fetched idea and cannot possibly act in the production of reversionary characters. An acquired influence may have relation to that production from the mother. In cases of monstrosities acquired impression has a significance. In monstrosities the claim of the father without the abnormality can be ignored. Impregnation does not bear any influence. The most probable cause is the nutrition from the mother. The birth of hydatids can be cited as an allied instance, which depends entirely on the placental degeneration of the mother. If forms can be so changed on account of mal nutrition of mother, it is no wonder that other small abnormalities can appear from the same cause. There is another class of abnormality which is called cultivated deformity. The conspicuous examples are the feet of the fashionable Chinese women, the narrow waist of the fashionable civilized women, and the flat head of some of the Indians of North America. They are never transmitted to children.

Taking all sorts of deformities, as hare lip, webbed condition of fingers or toes, squinting, talipes, moles, etc., into consideration, we wonder what an infinitesimal proportion of cases shows signs of transmission to progeny. This marks their acquired nature. It can not be denied that certain influences act on a mother to a great degree during pregnancy. They exert their power through the nutritive fluid to children and therefore they are acquired.

The following historical case may be cited as an instance:—

“A Roman magistrate, little, ugly, and hunchbacked, had by

his wife a child exactly resembling the statue of *Æsop*. Frightened at the sight of this little monster, and fearful of becoming the father of a posterity so deformed, he went to consult Galen, the most distinguished physician of his time, who counselled him to place three statues of love around the conjugal bed, one at the foot, the others, one on each side, in order that the eyes of his young spouse might be constantly feasted on these charming figures. The magistrate followed strictly the advice of the physician, and it is recorded that his wife bore him a child surpassing in beauty all his hopes."

The authenticity of the case may be questioned, but it is not impossible to get well-born children. When evolution of sex depends on mental influence, which has been observed in many instances, it is not a myth that mental impression may act in producing well shaped progeny.

The variations naturally depend on nutrition during the pre-natal formation or in the stage of post-natal development. I have given many examples of monstrosities and deformities acquired during the ante-natal life. Instances are not wanting of abnormalities, besides accidental or cultivated, in the post-natal period. Singular circumstances have occurred in which tigers reared human babies. The adopted issues imitate the manner of tigers and cannot change their acquired habit for a long time even when placed under human influence. Observation has amply demonstrated that during the post-natal period of development all our faculties are acquired and not inherited. Development of brain does not take place in the pre-natal period of life. In the post-natal stage, the frontal convolutions, the seat of our mental faculties, show signs of progress. The evolution of frontal gyri forms the type of man as distinguished from anthropoid apes.

The noticeable feature in apes is that the anterior sutures of their skull close early, prohibiting the progressive formation of brain. In man such early closure of anterior sutures brings on idiocy. In fact, all our monstrosities and deformities may be said to be forms of atavism, considering our descent from the lower animals. They are all acquired, a few during the pre-natal life and mostly during the post-natal stage. Objection may be raised in considering the forms which are taken from the mother during

the stage of formation as acquired, in contrast with hereditary, which exerts its influence during impregnation. The difference in their respective stages with regard to physiological processes makes such distinction desirable.

Another objection may be taken in considering atavism as the result of nutrition during formation and not due to impregnation, making a distinction between hereditary and acquired characters. I believe that hereditary characters make a marked impression and the effect is the transmission of forms to successive generations. The transient character of atavism with reference to a single or few issues marks its acquired limit. Further, if forms, which are said to be produced from atavism, are well scrutinized, none of them can be said to resemble an ancestor. They are distinct variations on account of some difference in nutrition from the mother. Even *Peloria* cannot be said, in that view, as a product of atavism. Monstrosities and deformities are variations like the products of atavism.

A word with regard to parthenogenesis which proves the hereditary character of impregnation. It has been observed that the two polar globules are extruded. In parthenogenesis, the second polar globule is retained to give the reproduction for many generations without the intervention of a male.

Pathological inheritance assumes transmission of certain poisons or micro-organisms with the spermatozoa or ovum. The association of morbid substances with them indicates a circumstance which does not allow impregnation. The absorption of any poison or pathogenic bacteria generally takes place during development, that is in the post-natal life. It has been observed in most cases. In a few, diseases can affect the embryo during formation in the pre-natal stage by nutrition on account of contiguity of the affected tissues with those of the child.

Rudolf Virchow, the inventor of pathological heredity, has himself relinquished the idea. The insignificant number of embryos which become affected proves an exceptional circumstance and not heredity. Further, the onset of diseases during adult life, indicates their acquired nature. In syphilis, which is considered to affect from the embryonic period, the proportion of cases are infinitesimal. A long period of incubation cannot be allowed in cases which become affected from

the second or the third year of life. It is more so with diseases that visit the adults, as tuberculosis, enteric fever, syphilis, etc. Most of the diseases are now known to come from external sources, and during the post-natal life. They either come through food or drinking water as in tuberculosis, malaria, enteric fever, cholera, small-pox, plague, beriberi etc., or they enter the lungs through the inspired air. The latter fact is tenable with regard to diseases of the lungs, as tuberculosis, pneumonic plague, asthma, etc.

Recent investigation has proved that certain houses become affected on account of many cases of the same disease occurring in one house. Phthisical and cancerous houses have become noted of all others. Their bacilli have been found in profusion in the walls of those houses. It has also been noticed that persons in sound health coming to reside in them become diseased. Tenants after tenants have suffered on account of this reason. The above mentioned facts amply prove that our diseases are not hereditary but acquired.

Nature with her best protection demonstrated by the phagocytosis of the white corpuscles of our blood in the post-natal life, cannot be indolent in the pre-natal period so as to give us the legacy of diseases making that destructive power of germs in our blood in embryo, useless. Unless the white corpuscles are overpowered we have a natural immunity. During the formative period in pre-natal life that immunity can only be destroyed by the preeminent potency of a disease. A distant attack is repelled by the swarming armies of white cells, a near attack reduces the defensive power to its minimum on account of the reduction of their number and the continuous harassing effect of the powerful enemy.

REVIEW.

The Prescriber. A Dictionary of the New Therapeutics. By John Henry Clarke, M.D., Author of "A Dictionary of Practical Materia Medica," &c., Editor of "The Homœopathic World." Sixth Edition. The Homœopathic Publishing Company, London, 1900.

The author tells us in the Preface that "the present volume is the outcome of my revision of the fourth English edition which appeared in 1893." Not only no mention is made of a fifth edition, but the author says further that "the Fourth Edition of THE PRESCRIBER has been now out of print for many months. My inability to prepare a new edition earlier has been due to the absorbing nature of the demands made on my time by the *Materia Medica*." Here we have a puzzle; we cannot understand how a jump has been made from the fourth to the sixth edition, without an intervening fifth. Was there a fifth edition at all, and was it a mere reprint? However this may be, we are thankful for the present improved edition which, as the author is justified in assuring us, "will be found to be well up to date and to include references to all the newer remedies that have stood the test of practice."

One of the chief objects the author had in writing this book was to supply details as regards the attenuation, dose, and repetition of remedies, about which he himself when commencing practice got no help from existing text-books. He, however, very wisely adds that "the last thing I desire is to be dogmatic—except in so far as dogmatism helps a beginner," and that "my directions as to dose, etc., are not intended to supersede the teachings of individual experience."

The most interesting and we may say the most instructive part of the work is the Introduction where under the heading, "The Place of a Repertory in Homœopathic Practice," we have the author's views, and very sound views they are, on the most important doctrinal points of Homœopathy.

Thus, he draws a very brief but clear distinction between the old and the new school methods of treatment. "In the old-school text books remedies are considered in relation to diseases; in homœopathy remedies are considered first and foremost in

relation to individuals. In homœopathy when the cardinal symptoms of a remedy are marked in any case, the name of the disease the patient may be suffering from is of no weight whatever in determining, either for or against the selection; the remedy which corresponds must be given, and if the case is curable it will cure." In support of this he cites the following cases as examples :

"A patient suffering from pneumonia had gone from bad to worse under homœopathic treatment based on nosological lines, when it was decided to call in further help. The consultant on entering the room observed the patient shrink away from him in great fear. He found him collapsed and cold, with cold sweat on the forehead. He said to the other attendants that he would take their word for all the rest of the patient's symptoms; there was one medicine that would cure the patient and one only, and that was *Veratrum album*; and *Veratrum album* very speedily did. *Veratrum* had not been given in the case before because it was not recognized by those in attendance as a pneumonia remedy. In a very severe case of pleuro-pneumonia of my own I rapidly cleared up all the dangerous symptoms with *Stramonium* to which I was led by the delirium of the patient, in which he saw animals about his bed, and especially a large black dog. The patient was a youth, and there was no question of alcoholism in the case. One of the best cures of rheumatic fever I ever effected was with *Ignatia*, which was given because of the mental concomitants in the case."

If such is the case, if these instances are given "to show that however valuable a clinical repertory may be, it can never be paramount in homœopathy," and if the PRESCRIBER seems "to justify the allopathic arrangement of medicines as remedies for diseases," where is the necessity, the *raison d'être*, of a book such as this which has undergone five editions? Here we have the author's answer: "I only offer it as one, and that the most elementary, of the methods by which the similar, that is to say, the homœopathic remedy may be found. For a clinical or nosological repertory is perfectly justifiable from a homœopathic point of view, *provided its limits are clearly understood*. Names of diseases correspond to well-defined groups in the symptom-record of various medicines. The PRESCRIBER shows at a glance

what these medicines are, and how they are to be distinguished from each other. Thus in a large number of cases a closely similar, if not the most similar remedy may be found." At the same time the author very properly strongly insists "that readers shall make themselves superior to it and independent of it by a thorough acquaintance with the *materia medica*," by which alone they can make themselves "proficient in the use of repertories."

Under the head of "kinds and degrees of similarity," the author has some very practical remarks which are consonant with Hahnemann's own teaching: "No two cases are exactly alike, and he (the homœopathic practitioner) must be prepared to adapt his means to any case that may arise, and happily there is in homœopathy scope for the exercise of a great variety of talent. In most cases there are more remedies than one that will benefit; and if the exact similimum is not found, the next or the next to that will give a measure of help. * * Then there are many different *kinds* of similarity, as well as of *degrees*, and every kind is available for the prescriber's use. There is similarity between drug and disease in organ-affinity; in tissue-affinity; there is similarity of diathesis; similarity of sensations and conditions—all these and other kinds of *like-ness* are available for the prescriber to find his correspondence in." And then the author uses strong but perfectly justifiable language when he says: "he is no friend of Hahnemann, or of Hahnemann's system who would tie up practitioners to any one of them."

As regards the doctrine of chronic diseases advanced by Hahnemann, Dr. Clarke, though believing that he was right in the main facts, yet relying on recent revelations of the life-history of morbid diatheses, very truly says,—“there is no necessity to limit the number of chronic diseases to the three he described. The use of the nosodes in homœopathy,” and the use of ‘vaccines’ and ‘serums’ in allopathic imitations of homœopathy are instances of possible developments on these lines.” We perfectly agree with him when he further says: “But no matter what may be the plane on which the points of similarity are sought and obtained, the individual symptoms of each case must in the last resort determine the choice of the remedy.”

We take the following at random to show how well the work has been executed :

Hiccough.—Ordinary acute cases, *Nux v.* 3, every ten minutes. If *Nux* does not speedily relieve, *Cyclam.* 3, every ten minutes; in chronic cases every four hours. After drinking, eating, or smoking, *Ign.* 3, every ten minutes. With spasm and belching, *Cic. vir.* 3, every ten minutes. Spasmodic, *Ethus. c.* 3, 4h. Violent hiccough, especially in malarial cases, *Nat. m.* 6, 4h. In hysterical cases, *Moschus* 3, every ten minutes. [The same medicines may be given three or four times a day, during the intervals between the attacks, the medicines being chosen according to the indications given.] In obstinate cases, (1) *Hydrocy. ac.* 1, 2h.; (2) *Sulph. ac.* 3x, 4h.

Hysteria.—In the paroxysm, *Mosch.* 3, 15m. Great impressionability, capriciousness, rapidly alternating mental states, "lump" in the throat, effects of worry, *Ign.* 3, 4h. Outbursts of passion followed by quick repentance; hysterical laughter, *Croc.* 6, 6h. Great depression, *Plat.* 6, 4h. "Lump" in the throat, hysterical cough and asthma, distension of the body, *Asaf.* 3, 4th. Convulsive hysteria, *Tarent.* 3, 4h. Nervous excitement and sleeplessness, *Valer.* 3, 4h.

Impotence.—When there is a history of an injury or blow, *Arn.* 3, 4h. From an injury to the spine, *Hyperic.* lx, 4h.; locally, liniment consisting of equal parts of *Hyperic. Q.*, spirit of wine and distilled water to be rubbed on the injured part night and morning. Simple impotence, *Agn. cast.* 3, 4h. Impotence with wasting of the testicles, *Kali brom.* 3x, 4h. When due to sexual excess, *Phos. ac.* 1, gtt. ii. 6h. When accompanied by general nervous depression and irritability, digestive disorders, and constipation, *Nux, v.* 3, 4h. Should these not succeed, (1) *Selen.* 6, 4h. (2) *Bufo sah.* 30—200, night and morning.

Small-Pox.—In general, *Variol.* 6—200, 4h. (The same may be given once or twice daily as prophylactic to those who are brought within the range of the infection. As an alternative *Maland.* 30 may be given in the same way.) Coated tongue, depression, prostration, back pain, nausea, *Ant. t.* 6, 1h. When maturation has commenced, *Merc. sol.* 6, 3h.; locally, the patient's body may be sponged with a solution of *Carbolic acid* (1 to 60). When hæmorrhages occur, *Ham.* 1, $\frac{1}{2}$ h. In small-pox which is malignant from the outset, *Crotal. h.* 3, $\frac{1}{2}$ h.

If we point to the omission of *Pulsatilla* under Hiccough, of *Nux moschata* under Hysteria, of *Lycopodium* under Impotence, of *Sarracenia* under Small-pox, and of a few other remedies that might have been given under these and other heads, it is only to show that the work is not, as no human work can be, perfect. We should be wanting in our duty if we were to pass over the too frequent repetitions of remedies and the external applications recommended by the author without a word of warning against both as opposed to the results of our own experience of over thirty years. Barring this we can confidently recommend the book as a very useful guide to the practitioner.

EDITOR'S NOTES.

The Blood in Carcinomatosis.

D. Maragliano (*Gazz. degli Osped.*, January 13th, 1901) has examined the blood in 33 cases of cancer of various organs, with a view to determining the presence or absence of micro-organisms, specific or otherwise. Of the 33 examined, with special antiseptic precautions, 9 gave positive results. In all the 9 cases ulceration had occurred in the growth, but there was no rise of temperature or evidence of septicæmia. The organisms found were varieties of staphylococcus. Probably the reason that they did not give rise to fever or septicæmia was owing to their lack of virulence; their presence, however, possibly is one of the factors in the causation of malignant cachexia. No bacteria were found in the blood of those cases where the cancer had not ulcerated.—*Brit. Med. Journ.*, March, 2, 1901.

Longevity in Spain.

If any one is ambitious to achieve the honour of centenarianism he might, if any trust is to be put in statistics, do worse than go and live in Asturias. The list of voters drawn up for the recent elections showed that there is a remarkable number of persons who have attained to a patriarchal length of days in that province of Spain. Each of the electoral districts of Langreo, Morcin, Grado, Villaviciosa, and Carreno has one centenarian; Siero and Oviedo have each two; Salas has electors aged respectively 101, 103, and 104; Cangas de Tineo has still more venerable triplets of 101, 105, and 106; Boal has two aged 101 and 102; Franco one of 107; Valdus two of 105 and 107; Pitona two of 102 and 104; while Parres holds the record with three fine relics of antiquity, aged respectively 103, 105, and 107. This single province therefore rejoices in no fewer than 28 centenarians in a total population of 600,000. The fact speaks well for the excellence of the climate of Asturias and for the vital stamina and healthiness of life of its inhabitants.—*Brit. Med. Journ.*, Feb. 16, 1901.

Patent Foramen Ovale in Advanced Life.

W. L. Worcester (*Boston Med. and Surg. Journ.*, cxliii, 342, October 4th, 1900) reports the case of a negro, 59 years of age, who died from exhaustion following a series of convulsions. Two years previously he had suffered from general paralysis, and a long loud murmur, systolic in time, had been made out at the apex. At the

necropsy it was found that the heart was moderately hypertrophied and the cavities dilated. The valves were healthy. The foramen ovale was present, measuring $2\frac{1}{2}$ by 2 cm., and was divided into two unequal parts by a tendinous cord. Immediately below the right aortic semilunar valve was an opening forming a communication between the ventricles, about 1 cm. in diameter on the side of the left ventricle, but only 2 mm. on the side of the right cavity. The advanced age of the patient is noteworthy, but there seemed to be no doubt that the defect was congenital in nature. He had been a soldier, but had been discharged in a year for physical disability, so probably the cardiac condition had been over-looked at enlistment but detected later.—*Brit. Méd. Journ.*, March, 2, 1901.

Congenital Atresia of Aortic Orifice.

J. A. Blake *Journ. Anat. and Physiol.*, xxxv, p. 1, October, 1900) puts on record a somewhat extraordinary case of atresia of the aortic orifice, due, according to the writer, to anomalous development of the auricular septum. The subject was an infant, slightly cyanotic at birth, who died on the fifth day of life, apparently from cardiac failure. The mother was a healthy 2-para who had a supernumerary mamma. Her previous confinement was normal. The infant weighed 6 lbs. $7\frac{1}{2}$ ozs. At the necropsy it was found that the right auricle was very large, and that the foramen ovale was covered by a valve, but not closed entirely; and Balke is of opinion that the valve in the foramen was not formed in the ordinary way, and did not correspond to the ordinary membrane. The right ventricle was also very large; there were numerous spaces with bands in the septum between the ventricles, but the cavities did not communicate. The left auricle was very small, merely a channel between the pulmonary veins and the foramen ovale. The left ventricle was extraordinarily small, containing only a few drops of fluid, and from it no vessels were given off, the diminutive ascending aorta being separated from it by a septum of connective tissue. The left auriculo-ventricular valve was poorly developed. The lungs were very atelectatic. The diminutive ascending aorta contrasted very curiously with the large aortic arch and vessels coming off from it. The current in the first part of the aorta must have been a reverse one coming from the ductus arteriosus.—*Brit. Med. Journ.*, Feb. 16, 1901.

The Treatment of Night-Blindness by Ingestion of Liver.

W. J. Buchanan (*Journal of Tropical Medicine*, November, 1900) says the affection seems to be not uncommon in tropical countries,

and the method of treatment appears to be both simple and effective. The treatment by ingestion of liver is "well known to native practitioners of some parts of India," and seems to be of ancient origin. During a few months preceding the publication of his paper Buchanan had treated 20 cases of genuine night-blindness with great and immediate success. The treatment is as follows: It consists in giving about 8 ozs. of liver (goat's, sheep, or ox), fried in oil and with spices, daily for a few days. Generally it will be found that five or six days' treatment is sufficient to effect a cure, but he has usually continued it for at least a week. Even as soon as the second day some improvement will be noted, and the cure is usually complete by the seventh day. It is known that cases of night-blindness improve under tonic treatment and dieting, but such cases take two or three months or even more before definite improvement sets in. In every case treated by Buchanan special care was taken to make sure that it was one of genuine night-blindness before putting it under treatment—that is, the common forms of night-blindness so often found in malarial or scorbutic cachexias, and not that due to retinitis pigmentosa. It seems probable that the ingested liver in these cases acts somewhat after the fashion of thyroid and suprarenal extract, and the other substances, used in organo-therapy. The immediate good effect cannot solely be due to any nitrogenous element in the food, for an equal quantity of fresh meat is therapeutically useless—*Brit. Med. Journ.*, Feb., 16, 1901.

Colorimetry in Water Analysis.

There is little doubt that with greater attention to colorimetry this convenient method of diagnosing the quality of water for drinking purposes will become more accurate and reliable. The colour of water itself is some indication of its purity and origin while the approximate determination of the degree of turbidity is valuable in the same direction. The value of observations on colour and turbidity depends largely upon the standards adopted. The standards must of course be unvarying and uniform. It may be noticed that in the monthly reports of the chemists to the London water companies the colour of the water is recorded in degrees of brown and blue based respectively upon solutions of standard bichromate of potassium and copper sulphate. Both these salts are permanent and are therefore very convenient and accurate for the purpose. Blue, of course, is the normal colour of pure water, the degree of brown indicating more or less organic matter. It has been shown that the degree of brown

varies directly with the proportion of organic carbon in water. In America the determination of the yellowish-brown colour of water has been based upon a standard of Nesslerised ammonia. But better than this standard is that obtained by mixing solutions of a definite strength of potassium platonic chloride and cobaltous chloride. This standard appears to be perfectly uniform and practical and accurate for the determination of the colour in water. It is known as Hazen's platinum cobalt standard. As regards turbidity, permanent standards are made containing a weighed amount of kaolin to distilled water. Permanent standards may be obtained in the case of determining the nitrogen in nitrates in water without recourse to artificial colours; for the production of a yellow colour by the action of nitric acid upon phenol, as is depended upon in the analysis of water, is quite permanent. Permanent ammonia standards for both free and albuminoid forms may be prepared with the cobalt platinum solution already mentioned. In the case of the estimation of nitrites depending upon the production of a pink colour with sulphanilic acid and naphthylamine hydrochlorate, this may be matched perfectly with a cobalt copper solution. In the same way the iron in waters, converted into the ferric form by suitable means, may be exactly measured by means of a mixture of standard platinum and cobalt solution. The permanency of a standard solution is an immense advantage and all contributions to our knowledge relating to these factors in analysis will be welcome. The latest contribution, upon which some of the above statements are founded, is from the Mount Prospect Laboratory in Brooklyn, New York, by Mr. Daniel E. Jackson, and his observations will be read with interest by all those concerned in the analysis of potable water.—*Lancet*, March, 9, 1901.

Infantile Hysteria.

The existence of hysteria in early life is now generally acknowledged, but the difficulty of diagnosis is often considerable. Bézy has just published a comprehensive work on the subject (*Journ de Méd.*, December 25th, 1900), in which hysteria as it appears in infants and children is described. He points out that there are few, if any, circulatory manifestations in early life, while the respiratory system is almost equally devoid of symptoms. There are, however, two forms of paroxysmal cough met with in children, which are decidedly hysterical in character—that is to say, pseudo-whooping-cough and a form of cough accompanied by slight blood spitting. Symptoms connected with the digestive tract are more frequent; anorexia,

vomiting, gastralgia, and eructations are of not infrequent occurrence while localised peritonitis has been simulated in many cases to such a degree that operation has often been suggested. Appendicitis, hydatid cysts, and other definite forms of abdominal disease have all had their hysterical counterparts. Enteritis and colic are common diagnosis, while in reality the underlying disease is hysteria. The renal system is also prone to hysterical symptoms, the chief of which is incontinence. As might be expected, the nervous system furnishes a large number of symptoms imitating closely some of the most definite forms of gross lesion. Thus meningitis as represented by intense pain, constipation, vomiting, photophobia, and retraction may be so closely imitated by hysteria that even the most experienced diagnostician might well hesitate. Pseudo-epileptic seizures, contractures, and different forms of paralyses are all met with. Ocular paralysis, even of complicated character, such as paralysis of the third nerve, ptosis alone, and other forms are described by the author while amaurosis, amblyopia, contraction of the visual fields, especially for colour, are all met with. Amblyopia and amaurosis may be unilateral or bilateral, and sometimes are associated with hemianæsthesia, most usually affecting the same side, but crossed amblyopia and hemianopia is not uncommon. These visual manifestations may appear, as in the adult, as the result of traumatism. Bézy, however, points out that the appearance of eye symptoms and anæsthesia is not always sudden as maintained by Charcot. Hemeralopia is not, according to this writer, a frequent symptom, as Parinaud maintained. Aphasia seems to be a somewhat rare manifestation of hysteria in children, but the writer quotes Guyot as describing a case of a girl, aged 4, who had two attacks of hemiplegia with aphasia, both of which got suddenly well. Neuralgic pains, especially in connection with the eye, so closely resemble hysterical ophthalmic migraine that the writer questions whether it is allowable to separate them. Bézy ends his article by describing a form of hysterical nystagmus which he states is very rare, especially in infantile hysteria. It is mixed in character, and is the same both in fixation and nonfixation. It is not increased by movement of the eyeball, and is not accompanied by errors of refraction, these being points to separate it from the organic forms.—*Brit. Med. Journ.*, Feb. 23, 1901.

Ozone and Bacteria.

In a paper recently read before the Royal Society, Dr. Arthur Ransome and Mr. A. G. R. Foulerton described certain experiments

which they undertook in order to test the value of ozone as a practical disinfectant. In the first experiment culture tubes with sloped surfaces of nutrient agar or gelatine were inoculated with various micro-organisms. A mixture of atmospheric air and ozone was passed over the surface for at least four hours, than pure oxygen charged with ozone for 30 minutes. The culture tubes and control tubes were then incubated. In two of seven species tested (*bacillus mallei* and *bacillus diphtheriæ*) there was a slight retardation of growth, but after eight days' incubation all difference between the experimental and control tubes had disappeared. The results were negative in the other five cases. Ozone was next made to act in the absence as complete as possible of dead organic matter. Instead of agar or gelatine small plaster-of-paris blocks were used for inoculation, and the tubes were plugged with fine Italian asbestos fibre instead of cotton wool. After transference to nutrient broth and incubation, on comparison with controlled tubes no modification of the bacteria was to be observed. Ozone was next passed over the cultures mixed with oxygen under such pressure that 1.5 litre of gas was passed every minute, and this was continued for half an hour. No impairment of growth was caused. In other experiments a current of oxygen and ozone was passed through five tubes: (1) containing milk with *bacillus anthracis*; (2) milk with a non-sporing culture of *bacillus anthracis*; (3) milk containing *bacillus prodigiosus*; (4) fresh unsterilised milk; (5) commercial "sterilised" milk with a sporing, butyric-acid-forming *bacillus*. After twenty minutes ozonisation and subsequent incubation, tubes 1, 2, and 5 were found to be sterile. No. 3 showed mould fungus, but no bacterial growth. No. 4 contained a mould fungus and a few colonies of cocci. A loopful of the milk used for 3 and 4, when incubated without ozonisation, showed many colonies of different bacteria-Sputum rich in tubercle bacilli was smeared on filter paper and exposed for varying periods to highly-ozonised air. Afterwards the sputum was emulsified with normal saline, and the mixture was injected into guinea-pigs. The crude sputum was similarly emulsified and injected. Severe infection occurred in all cases, and there was not the least indication that ozone had exerted any influence on the virulence of the bacilli. The authors conclude that in the dry state ozone is incapable of exerting an injurious action on bacteria, and that any purifying action which ozone may have in the economy of Nature is due to the direct chemical oxidation of putrescible organic matter. The experiments with milk, however, would appear to show that a bactericidal property

may belong to ozone provided the gas be passed through a fluid medium which contains the bacteria in suspension.—*Brit. Med. Journ.*, March, 2, 1901.

Insanity in Twins.

Dr. A. Cullere, medical superintendent of the asylum at Roche-sur-Yon, has published an interesting account of insanity in twins in the February number of the *Archives de Neurologie* and has given the records of two new cases. He first asks the question, "Is there a special insanity affecting twins?" (*folie gemellaire*), and answers the question as follows. The special predisposition of twins renders both liable to one common form of insanity. The attack is characterised by the three following features: first, simultaneity of the attack and more or less parallelism of the symptoms at the onset; secondly, analogous course and similarity of termination of the malady; and thirdly, the spontaneous origin of the disorder arising from a common organic basis. When these features are present it is possible to recognise in the insanity of twins an origin in degeneracy, for the common basis of development is usually some form of congenital mental debility or even imbecility. The onset of intellectual disorder is often early, it is characterised by variability of mental symptoms (polymorphism), and it has a tendency to pass into premature mental enfeeblement (*dementia præcox*). Dr. Cullere is inclined to view the very fact of twinship (*gemellite*) as itself an indication of inferiority, and quotes to this effect the experiences of Keim, Fournier, and Jonathan Hutchinson that twins are relatively common in the offspring of tuberculous and syphilitic parents. A strong neuropathic heredity is almost always met with in the genealogical history of insane twins, and this even when but one of the twins is the subject of insanity. Thus in six out of seven such cases the parental taint appeared in the form of phthisis and lithiasis, phthisis and nephritis, insanity of the litigious paranoiac form, moral imbecility, or other nervous defect. The following cases illustrate insanity in twins. Case 1.—The patients were twin sisters, firstborn; the father was alcoholic and of precarious health. The mother was in normal health but bearing a neutric taint from alcoholic and phthisical grandparents. The twin sisters were backward in speech and intelligence but otherwise enjoyed good health. They menstruated at the age of 16 years. One became a seamstress and the other a domestic servant. At about the age of 17 years both began to show signs of mental confusion, irritability, and violence of temper. Both suffered from terrifying dreams and nightmare. They grew worse and one of them had to be placed in an

asylum, the chief symptoms being maniacal excitement and irresistible impulses to violence and murder, which continued with remissions and intermissions for some years. She then became mentally enfeebled. The other sister exhibited similar symptoms of mania and murderous impulses and had intermittent attacks of frenzy mingled with incoherent screaming, cursing, and crying; she made several attempts to dash out her brains. She gradually subsided to a quieter condition after a few years and exhibited a less degree of mental enfeeblement than did her sister. Both sisters exhibited facial asymmetry. Case 2.—The patients were twin brothers, the sons of a hypochondriacal man whose sister was insane. The twins were born at the fifth confinement and were during childhood noted to be weak-minded. Their mental disorder began to develop at about the age of 20 years. Both had a marked propensity to alcoholism; one became a soldier and while on military duty was seized with an attack of mental confusion and excitement. After this he had repeated maniacal attacks, and drinking always brought them on. He then developed delusions of a grandiose nature. The other at the age of 20 years had subacute delirium and passed into a stage of stupor. He subsequently developed delusions of persecutions of a persistent kind. *Lancet*, March, 9, 1901.

Vegetarianism.

In an interesting paper recently published, Professor Ferdinand Hueppe discussed the question whether vegetarianism can be supported on scientific grounds. He considers that geological evidence proves that the cradle of primitive man was in a northern land, and fixes his evolution in the tertiary period when Asia was still partly separated from Europe, but connected with Africa and united with America by a land bridge. The human-growing anthropoid, owing to hard times, left the forests and became a beast of prey, probably the most cunning and ferocious that has ever stalked on the face of the earth. In the interglacial period man was a mammoth hunter. The Danish kitchen middens show that the primitive Europeans were fish and flesh eaters. The Asiatic stock, mean-while, evolved into shepherds and began to cultivate cereals in the alluvial plains of the great rivers. The irruption of Asiatics into Europe brought about the introduction of cereals and domesticated animals, and a mixed diet became usual. With the over-growth of population in the East vegetarianism arose, and man took to rice eating, not from desire, but through the scarcity of animal food. The Eskimo remains to this day an example of a pure

flesheater. The anthropoid stock from which man evolved fed on nuts, fruit, eggs, small birds, and insects. Such is still the mixed diet of the ape, as well as of the Arabs of this age. Owing to the struggle for existence man has evolved into a flesh-eater, a mixed feeder, and lastly into a vegetarian, but vegetarianism became possible to him only by the introduction of fire and cooking. He has neither the teeth nor the gut of a herbivorous animal; otherwise he would naturally graze the fields, and in winter chew oats in a manger. It has been abundantly proved by breeders of pigs and other animals that the best proportion of albumen to carbohydrates in the diet is 1 : 5. Among the Eskimo it is found to be 1 : 29, among Europeans on a mixed diet 1 : 5.3. The Irish peasant, on the other hand, consumes, or used to consume, a diet containing ten times as much carbohydrate as albumen (1 : 10.6), and in a Munich vegetarian Voit found the proportion to be 1 : 11. A diet such as that of the Irish peasant increases the death-rate in the young and the old; that is to say among those in whom the excess of carbohydrate cannot be burnt off by hard bodily labour. Such a diet can be consistently borne only by a man bred to it from infancy, and accustomed to the doing of hard work. There is no advantage in vegetarianism as a working diet. The same amount of potential energy (33 per cent.) consumed as food appears as work in the carnivorous dog, the herbivorous horse and the omnivorous man. No vegetarian animal, not even the horse, ox, camel, or elephant, can carry the weight of his own body. The carnivorous lion, on the other hand, gripping a calf equal to himself in weight, can jump a hurdle 6 feet high. The lifting power of man, the mixed feeder, exceeds that of any other mammal. Louis Cry is recorded to have lifted 1,669 kg., Little carried 600 kg. fifteen steps, a Tyrolese in six hours carried 110 kg. to an altitude of 1,500 m. A man of 75 kg., working in the docks will, many times in the course of one day's work, carry sacks weighing 100 kg. The diet of the vegetarian, reckoned in calories, is found to value 86 calories per kg. of body weight, and the proteid is worth only 6 per cent. of this. The man on a mixed diet, on the other hand, eats only 39 calories per kg. of body weight, and the proteid equals 14 per cent. of this. The vegetarian is like an over-heated steam engine which is in danger of explosion owing to the use of a wrong kind of fuel. His digestive system is forced to deal with a far greater bulk of food, and energy which might be used for the higher purposes of mental activity is wasted. Only in the condition of hard manual labour in the open air can a purely vegetarian diet be borne. Of course he who con-

sumes milk, eggs, butter, and cheese cannot be considered a vegetarian. Vegetarianism does not, as is sometimes suggested, lead to a mild and gentle spirit for the wild buffalo, the rhinosceros, and the rice-eating Chinese pirate are alike remarkable for ferocity and cunning. Finally the vegetarian is exposed to as many chances of poisoning as the flesh-eater. The vegetarians of our time, Professor Hueppe tells us belong to the class of neurotic men who, failing to meet the strain of town life, ever seek for a "heal-all" in one or other crank. Their doctrines, pushed with fanatic zeal, make no impression on the healthy, and only tend to overthrow the balance of others who, like themselves, are the victims of an unnatural mode of existence,—*Brit. Med. Journ.*, March, 2, 1901.

The value of the X Ray in Medicine.

F. H. Williams, of Boston, states (*Med. Record*, January 26th, 1901) that he has made use of a static machine with eight plates, each 6 feet in diameter. With such a machine, the heart of man could be seen at a distance of 15 feet. The apparatus should have an adjustment for readily turning the light up and down. Objects could often be made out in a moderate light which would escape observation in a very strong one. This adjustment was especially necessary when the chest was examined for signs of early tuberculosis. By means of radiographs physicians could determine the presence of calcification in many of the arteries, even of the aorta itself, in certain cases. It was also possible under favourable circumstances to distinguish fatty tissues. In the abdomen a portion of the outlines of the dense organs, such as the liver and spleen, were best seen by distending the intestine with gas or air, as this produced a greater contrast; or the subnitrate of bismuth might be mixed with bread and milk and given to the patient. The outlines of the pelvis could be followed by means of radiographs, and its transverse diameter determined more accurately than ever before. In examinations of the chest the patient should be seated in a suitable chair, or should lie down on a stretcher. The light should always be at a distance of about 3 feet from the fluorescent screen, and in examinations of the chest at the point where a line joining the nipples crossed the median line of the body. Thus observations made at intervals could be compared with one another or examinations on the same patient made by physicians in different localities could be compared. Fluorescent screens were better than radiographs for such work. In order to judge of the density of the lung, one must estimate not only the

amount of light coming through the chest, but comparison should be made of the two sides of the chest. In emphysema the thorax would be found lighter through-out than under normal conditions. The excursion of the diaphragm was also much lower and more restricted. The heart changed its position very little between expiration and inspiration in such cases. In early tuberculosis the excursions of the diaphragm were shortened on the affected side, and the heart was drawn a little to the affected side. In addition there was found an appreciable increase in the density of the affected side. A photograph of a case of pneumonia on the seventeenth day—that is, at a time when several physicians had been unable to detect any physical signs of the disease remaining—showed that there was a very decided increase in the density over the affected side. If an x-ray examination showed that the outlines of the diaphragm could be readily made out on both side, one could be sure that there was no pleuritic effusion present; if, on the other hand, these outlines were indistinct on one side, it was probable that the partial obscuration was the result of such an effusion, though it might arise from other causes. By x-ray examination it was possible in some cases to determine the borders of the heart more accurately than had been possible hitherto. In some cases of valvular disease or of renal disease it was no longer possible to see clearly the outlines of the diaphragm or of the lower part of the heart, owing to the presence of œdema of the lungs. In central pneumonia it was practically always possible by x-ray examination to make out the increased density of the centre of the lung, even though this could not be detected by auscultation and percussion. Empyema following pneumonia was often over looked, but if an x-ray examination were made, such an error would not be likely to occur. The x-ray examination was of special service in two kinds of cases of aneurysm—namely, those in which the aneurysm did not present well-marked physical signs, and in a not inconsiderable number of cases of supposed thoracic aneurysm, which the x-ray examination proved not to be of this nature. New growths in the chest were sometimes, as was well known, very difficult of recognition by ordinary physical examination. An x-ray examination would enable one to detect such a growth earlier, and determine its position and size. The dangers of x-ray examination lay in faulty methods and wrong inferences, and were not inherent in the method itself. Among the thousands of x-ray examinations made at the Boston City Hospital and in his private practice there had not been a single case of x-ray dermatitis. The method, like other methods of precision, required experience and

skill for its successful employment. No mode of examination was more difficult of execution because of the time consumed and the experience necessary rightly to interpret the results of such examinations. A physician who would carefully study 1,000 cases, both by the ordinary methods of physical examination and by the use of the *x-ray*, would find his skill in physical diagnosis materially improved. Williams said he did not wish to be understood as advocating the substitution of this method for any other, but he claimed only that it was an important auxiliary.—*Brit. Med. Journ.*, March, 2, 1901.

CLINICAL RECORD.

Foreign.

A CASE OF DIARRHŒA CURED BY PULSATILLA.

By W. B. HINSDALE, A.M., M.D.

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Mr. W., age sixty-five, manufacturer of medicines and vender thereof, came to the hospital October 30, 1900, complaining of an exhaustive diarrhœa. He being a medicine man in the most literal sense, had taken large amounts of his own "bowel regulator." He was asked of what his "regulator" was composed and replied that it was a secret and that he made his living out of his secrets; but stated further, confidentially (that his treatment might proceed along rational lines) that what he had been taking contained large amounts of opium. He evidently had contracted that indescribable and indefinable condition known as a "cold" which had "settled" in his bowels. In other words, he was suffering from a subacute catarrhal enteritis due to exposure to bad weather aggravated by his opium nostrum. He was much emaciated and took to the bed soon after entering the house. The diarrhœa was profuse in amount and as frequent as ten or twelve times in twenty-four hours. Sometimes it was very painful, again painless and involuntary. It finally became quite involuntary and his bowels moved unconsciously. Occasionally he would vomit his food; anorexia, at times, was decided. What was thought to be good prescribing did not relieve him for five weeks. *Nux vomica*, mercurious in various forms, *podophyllum*, phosphoric acid, arsenicum, *croton tiglium*, *cuprum arsenite*, *china*, *kæocotum*, careful dieting, good nursing and attention failed to hinder the gradual decline of the old man. Students shook their heads, and

consultants said "it is a lost cause." However, the nurse had noticed that he always called for cold food and wanted ice cold drinks. She was told to let all his milk become ice cold and to gratify his craving "for everything cold." This agreed with him. The house physician was ordered to give *pulsatilla* sixth. That is all. The recovery was rapid, complete and uneventful.—*Clinique*, March 15, 1901.

THE POSSIBLE EFFECTS OF CALCAREA SULPHURICA IN A CASE OF EMPYEMA.

By O. S. HAINES, M.D., PHILADELPHIA.

In October, 1898, we admitted to the Hahnemann Hospital a man aged 28 years, a finisher of leather, who had really been a very healthy subject, with the exception of the ailments incident to childhood, until some three weeks previous to his admission. Then he contracted a pleurisy, with an extensive effusion. He laid abed two weeks, worked four days, and was again obliged to go to bed on account of weakness and high temperature. On the evening of the 21st of October he was suddenly seized with a fit of coughing and strangling, during which he was nearly asphyxiated, and expectorated a large amount of pus. He was in such a sad state after this that he was removed to the hospital. An examination of his chest showed that upon the right side, from the inferior angle of the scapula to the bottom of the chest, there was flat percussion sound, no respiratory murmur, no voice transmission, or very feeble. It was also noticed that the heart was displaced towards the left until its apex reached a line drawn downward through the nipple. His expectoration was thick, yellow pus, occasionally blood streaked. It came in gushes, with paroxysmal cough. He would half-fill a spit-cup before relief was obtained. His other symptoms were pallor, weakness, loss of appetite and difficulty of breathing. There were some pains throughout the chest. He was emaciated; for the time, ill. His fever was of a hectic type, temperature reaching 101° at five each afternoon, and falling to normal, with slight sweating, by morning.

It was presumed, from history and signs, that he was suffering from empyema, with fortunate rupture of the abscess into a bronchial tube. Notwithstanding the favorable termination in such a rupture, we did not feel sure of our prognosis. It is not our custom to treat such cases medicinally, yet he did not seem to be in condition for immediate operation. Attention to diet and careful nursing were ordered. We could not see distinct indications for any remedy, so

he was considered a suitable case, clinically, for the *Calcareo Sulphurica*, which was administered in the 3x trituration.

The remedy was continued until his discharge, about the middle of December. We believe, from our examination at that time that there were, at the time of his leaving the hospital, normal respiratory sounds quite to the base of the affected chest. He looked to be in perfect health, and complained of nothing. We could not help thinking that the remedy participated largely in this brilliant recovery. A recent report from this case confirms what has been said regarding his recovery. It must appear to everyone that neither calc. sulph. nor any other drug will take the place of surgical drainage in those cases urgently demanding the latter, yet the undeveloped possibilities of medicinal therapeutics are many and important. We think the *Calcareo Sulphurica* is a remedy worthy of the attention of surgeons in empyema *after* thoracentesis or drainage at least, even if their nerves will not permit its use before operation. —*Hahnemannian Monthly*, April, 1901.

FUNGUS HÆMATODES REMOVED BY SILICEA.

DR. W. E. LEDYARD, SAN FRANCISCO.

April 14th, 1889, Mrs. H. H., about 60 years of age, presented herself for treatment. She had on the palmar surface of the metacarpal phalanx of the left middle finger—a small, *purplish venous tumor*, occasionally *discharging black blood*, which kept welling up, saturating the bandage which she wrapped around the finger. *Pressure* produced a *pricking* sensation.

There was *falling out of the hair*, after pneumonia. *Scalp sore to the touch*; weak feeling with aching and *drawing* in left groin when walking.

Finger-nails, thin, brittle furrowed; occasional sharp pain through left chest; brick-dust, adherent sediment in urine.

April 15th. Weary, constant *cold*, *chilly*, uncomfortable feeling across chest; tumor has not bled since yesterday but is more sore.

June 3rd. Has had several doses of *Silicea 200*, since the 15th of April, and the *fungus tumor has not bled for over a week*.

Under the rubric: *Nails furrowed*; we have: *Ars.*, *Fl. ac.*, *Saba.*, and *Sil.*, the last occupying first rank.

Under: *Nails brittle*; *Sil.* takes second rank, with *Sulph.* and *Graph.*, and takes precedence of seven other brittle-nail makers and unmakers.

Under the heading: Fungus hæmatodes, we find Silicea taking the lead. with Ars., Carbo an., and Phos.; while fifteen more remedies assert their power *ceteris paribus*, to remove a bleeding fungus tumor.

June 4th. Silicea 500, one dose, dry.

July 4th. Our patient went East on a visit and reported as follows: (Letter from Lexington, Mass., dated June 27th). Fungus hæmatodes *bright red, as though it would bleed if uncovered*; no soreness; no crawling. Slight pain in left chest while travelling. Silicea 40m. one dose, dry, sent by mail.

July 14th, Boston. The tumor has not bled since, but is *much swollen and very red*; obliged to keep a bandage on the finger; have had some pain in the left chest; weather very warm.

July 25th. Sent another dose of Silicea 40m, which we learned later she did not take on account of other symptoms.

July 30th, Newbury, Vermont. Fungus hæmatodes *not so swollen*; now there are three purplish swellings; hasn't bled since leaving home, complains of painful diarrhœa, stiffness in small of back, etc.

August 3rd, Newbury, Vermont. Tumor decidedly smaller.

August 11th, Newbury, Vermont. *Now there is only one* bright red spot. Late in the autumn of the same year our patient returned to California, but long before her arrival at home she states, the bloody fungus tumor had completely disappeared.

Thus there were taken several doses of the above remedy, Silicea, in the 200th potency; one in the 500th, and one or two (I never heard whether she took the second dose) of the 40m.

Many years ago, our patient tells us, she had a *similar tumor on the thumb, which was cut out*, leaving a *contraction and an unsightly scar*. Which treatment do you prefer? Which is the scientific treatment?—*Medical Advance*, Feb., 1901.

gleanings from Contemporary Literature.**THE EFFECTS OF SEVERE MUSCULAR EXERTION,
SUDDEN AND PROLONGED, IN YOUNG
ADOLESCENTS.**

By W. COLLIER, M.D., F.R.C.P.,

HONORARY PHYSICIAN TO THE RADCLIFFE INFIRMARY, OXFORD.

In any attempt to ascertain the effect of severe muscular exertion, it is necessary, first of all, to study the physiological changes set up in the body by moderate exertion.

Curiously enough, although the English are more addicted to athletic exercises than any other civilised nation in the world, no English physiologist, as far as I know, has ever systematically investigated this subject from a physiological standpoint and recorded the results of his investigations. The only works on the subject I am acquainted with are *The Physiology of Bodily Exercise*, by Dr. Lagrange, written for the International Scientific Series, and *The Physiology of Sport*, by Dr. George Kolb, a distinguished German athlete.

As I wish to make my paper as practical as possible, I will start by discussing the effects of exercise on two of the most important organs of the body, the heart and lungs.

Breathlessness.

One of the objects of respiration is to get rid of CO_2 , which is uninterruptedly manufactured in the body while life continues, and the accumulation of which in the body can cause death in a very short time. One of the results of muscular contraction is the production of CO_2 , therefore the greater the number of muscles contracting and the more rapidly they contract, the more quickly does their gas accumulate in the blood. It would appear, then, that the most important factor in the production of breathlessness is the saturation of the blood with this gas. A sleeping man, when the majority of his muscles are in complete repose and the manufacture of CO_2 is at its lowest, breathes less deeply and less frequently than when awake. In hibernating animals the production of CO_2 is diminished to an extraordinary degree, and so is respiration. Lagrange states that CO_2 injected into the veins of a dog immediately quickens respiration, while a continuation of the injection brings on intense dyspnoea and all the usual symptoms of asphyxia.

We may conclude, then, that the respiratory need is in proportion to the quantity of CO_2 in the blood, and that in athletic exercises the quantity is rapidly increased by increased production. If now muscular work in a given time is so great as to produce a quantity of CO_2 greater than the lungs are able to eliminate the gas must accumulate in the system, and the respiratory distress will increase every moment, and will finally interrupt the work. Further, CO_2 has a weakening influence on muscular fibre, and causes its contraction to be less forcible and effective.

The amount of muscular effort necessary to produce breathlessness will vary with each individual and with the individual capacity of eliminating CO_2 by the lungs. The boy with large lungs, powerful heart, and an acquired knowledge of expanding his lungs to the best advantage will get rid of CO_2 much more rapidly in proportion to its manufacture than the boy with badly developed lungs, weak heart, and feeble chest expansion.

The Lungs.

The first effect of exercise is to increase the frequency and force of the heart's beat and quicken the blood current, more blood is sent to the lungs, and we get an active congestion. As a result of this active congestion the space occupied by the blood which swells up the pulmonary capillaries covering the air vesicles is no longer available for all the air in those vesicles. The lungs in consequence make an increased effort of expansion, and many of the air cells not usually in action at once expand with air to make good the deficiency. These changes occur especially about the apices of the lungs and along the free edges. As the muscular effort continues an increasing amount of CO_2 is thrown into the blood, stimulating the respiratory centre in the brain, inspiratory efforts become deeper and more frequent, and more air is drawn into the air cells, at once impeding the circulation through the pulmonary capillaries; a fight for place is going on in the lungs between the blood and the air; the heart beats more and more quickly but each ventricular systole is less vigorous, and as a result passive congestion of the lungs follows, and with it a marked obstacle to the elimination of CO_2 . The exertion cannot be carried beyond a certain point as increasing saturation of the blood with CO_2 in the end brings about the cessation of all effort.

We see here then at least two effects of severe muscular exercise either sudden or prolonged. A great strain is thrown on the air vesicles, leading to what may be described as physiological emphysema.

Let me take the case of a university athlete, let us say in his third year, a man who has gone in vigorously for athletic competitions, rowing or running as a schoolboy, and keeping up, or probably increasing, his athletic competitions regularly at the university. In such a case you will often find the following signs of this physiological emphysema; (1) Absence of apex beat either on inspection or palpation while at rest; (2) absence of all superficial cardiac dulness, due to the fact that the enlarged emphysematous lung completely covers the heart and pushes it away from the thoracic wall; (3) on percussion a hyper-resonant note above the clavicles and along the edges of the sternum. Now if the muscular effort which has brought about this emphysema is repeated too often or kept up for too prolonged a period, it is quite easy to conceive that it becomes converted into a pathological emphysema, leading in later life to the same evil consequences that we have in the emphysema of old-standing bronchitis or chronic asthma.

Heart Strain in University Athletes.

A second effect is to throw a great strain on the right side of the heart,

on the right ventricle and right auricle, as passive congestion of the lung implies over-distension of the right ventricle.

When we remember the enormous changes going on in the body of young adolescents, the rapid growth of the heart as well as all the other parts of the body, we should be safe in assuming that at no time during what may be called the athletic period, is the right side of the heart more liable to injury from over-distension. I think this danger is a very real one, and I can recall several examples coming under my own observation.

A few years ago I was asked to see in consultation a public school boy who had come to Oxford with a great school record as a mile runner. When training for the Freshman's sports at Oxford he found that he was not running nearly up to his form, and that the watch made him many seconds slower than he ought on his previous records to be.

On examination of the heart while at rest nothing unusual was noticed. On making him walk fast round a large room two or three times marked epigastric pulsation was observed, which continued longer than usual, at the same time a very distinct systolic murmur was produced, heard over the middle of the sternum, especially along the left border. I had no doubt that this was a case of over-dilatation of the right ventricle, and advised his giving up long-distance running altogether. This patient was afterwards seen by Sir William Broadbent, who gave him the same advice, and sent him a sea voyage, where the temptation to do too much was removed.

I believe that Sir William Broadbent's explanation of the murmur was to the effect that in these cases the conus arteriosus—the upper conical portion of the right ventricle from which the pulmonary artery rises, usually covered by lung tissue—owing to the dilated condition of the ventricle, comes into actual contact with the chest wall, and during systole is more or less flattened out against it, thus forming an eddy in the blood current as it rushes through the pulmonary artery, producing a murmur systolic in time. Let me give you another example :

From time to time I examined a very successful three-mile runner, and on one or two occasions, after comparatively slight exertion—walking round a room two or three times—I detected a soft systolic murmur over the pulmonary area. However, he was going so well that, after consultation with a medical friend, we decided that he might be allowed to compete in his next race ; he did so, winning easily ; two or three weeks later he ran again, winning this race with great ease.

The following year, on one or two occasions I detected the same murmur early in his training ; but later, on training very carefully, the murmur was not brought out by exertion. He then ran a very hard race intending, I believe, to make an exceptionally good time. When about 300 yards from the finish, and running quite by himself, he collapsed, and with very great difficulty tottered to the tape, and was supported to the pavilion, where he lay for nearly three-quarters of an hour in a semi-conscious condition, and was a considerable time before he had sufficiently regained his normal condition to leave the ground. I was not present at the race, and so am obliged to fall back on his own statement.

A year passed, and he was most anxious to race again, but was obliged to confess that when it came to running hard many of the old symptoms, to which before his breakdown he had been a complete stranger, began to assert themselves, and in my own consulting room, I was now and again able to bring out the murmur to which I have referred.

I have no doubt that this was another example of the dilatation of the right side of the heart produced by prolonged muscular exertion. I might

cite many other cases very similar to these which have come under my own observation.

Heart Strain in Girls.

I would here call attention to a form of heart strain by no means uncommon among girls and young women. We find it most frequently among young domestic servants who have a large amount of running up and down stairs, and it is generally associated with a certain amount of anæmia, and probably is due to an atonic condition of the heart muscle induced by the impoverished blood. The most prominent symptoms are breathlessness on exertion out of all proportion to the anæmia and excessive frequency and tumultuous action of the heart.

In these cases we may give iron in various forms for weeks with very little benefit; it is only when we insist on rest in the horizontal position for at least two or three hours in the day that our patients begin to make real improvement. Often it is necessary to keep them in bed for a time. The rapid growth of girls between the ages of 14 and 18, associated with marked functional changes, renders them, I believe, particularly liable to minor forms of dilatation of the right side of the heart. It is well to remember this, as in recent years hockey, swimming, cycling, and tennis have been taken up with such vigour by them, and are at times overdone, though on the whole the effect on the health is very beneficial.

The Effect of Severe Muscular Exertion on the Left Side of the Heart.

At the outset it would appear that authorities differ as to the condition of blood pressure in the systemic vessels during exercise. Lagrange, quoting Marey says that the heart in spite of the increased frequency of its beat, does not give to the blood so powerful an impulse as in ordinary circumstances, and the blood pressure falls. On the other hand, Dr. Kolb shows by a number of sphygmographic tracings that during active exercise the blood pressure is raised.

It will be admitted that in the earlier stages of great muscular exertion the blood is thrown into the aorta with both increased force and increased frequency, and that one of the most constant and marked results or oft-repeated muscular exercise is what may be described as physiological hypertrophy of the heart. When I am asked to examine an under-graduate in his first year with reference to his fitness for running or rowing, I invariably find out from his past history what amount of exercise he has indulged in during his school career. If he has gone in vigorously for athletics—running, rowing, football—I expect to find some evidence of this hypertrophy; the apex beat will be found lower and more to the left than usual, in the mammary line or even external to it; the impulse will be strong and heaving in character, there will be some accentuation of the aortic second sound, and the pulse will be slow and strong. If during his university career he keeps up his athletic efforts, these indications of hypertrophy will become distinctly more marked and more unmistakable. This hypertrophied condition is, I think, a matter of little consequence as long as the efforts are not too often repeated. It is in the too frequent repetition of

severe muscular effort or its continuance over too long a period of life that the danger lies."

More than thirty years ago Dr. Clifford Allbutt, in a paper published in the *St. George's Hospital Reports* on the effects of overwork and strain on the heart and great blood vessels, showed that the chief danger lies in the aorta. He pointed out that oft-repeated muscular effort produced hypertrophy of the left ventricle, and that if continued the blood from the hypertrophied heart was constantly thrown into the aorta with abnormal force, and that the vessel gradually lost a certain amount of its elasticity, became stretched and dilated. This change increased the capacity of the vessel and permitted a larger quantity of blood to be thrown into it at each contraction of the ventricle. In order to force it onwards the ventricle was compelled to beat with increased power. So little by little the distension was increased until the day arrived when incompetence was set up, either by stretching of the orifice from dilatation of the vessel, or from inability of the valves to support the column of blood above them. These changes, as Dr. Allbutt carefully pointed out, were very gradual in their progress, and did not as a rule induce the sufferers to seek medical aid until they had attained middle age. There is one troublesome symptom—that I think is often associated with this form of physiological hypertrophy, and that is sleeplessness. I remember that when training for the University sports this troubled me very much, and in my fourth year I was obliged to give up training in consequence.

Prophylaxis.

It is easy to see how the dangers, as far as the heart and lungs are concerned, of severe muscular exertion, sudden and prolonged, in the case of young adolescents, may with a little care be avoided: (1) I think all boys before being allowed to compete in school sports, especially in running or rowing races or gymnastic exercises, should undergo medical inspection, and that the badly-developed, weakly, flabby-muscled boys should not be permitted to take part in these competitions, but they should most certainly be encouraged to go in for graduated exercises, as I believe with good medical supervision and a little encouragement many of these boys will grow into fairly broad-chested, muscularly developed, healthy men.

(2) Boys who are obviously growing with exceptional rapidity as occasionally happens, should be advised for a time to avoid exercises requiring great muscular exertion. (3) On the other hand I should say that the healthy strong boys, who take part in all the school usual sports, football, paper-chases, or athletic sports, might well be examined once or twice a year to safeguard against overstrain, and here I might add one word, as to the examination of the heart. I believe it is impossible to form an accurate opinion as to the way the heart is doing its work without giving it a very definite amount of work to do. I invariably make a patient walk fast round a large room two or three times and sometimes run up a flight of stairs before expressing any opinion as to whether he is in a condition to train for a hard race, and am frequently unable to detect anything wrong until I have taken this precaution.

Cases of severe and sudden breakdown from muscular exertion in the case of well-fed public schoolboys and university men are exceedingly rare. I have known men in face of all advice row night after night in the bumping races at Oxford with well-marked valvular disease and yet not come to any sort of grief. Whatever changes are set up may be sufficient to make the athlete at the time short-winded, and perhaps cause precordial pain and discomfort, but do not produce any striking and alarming symptoms, the danger all lies in the future twenty years onwards.

Recommendations.

I am perfectly familiar with the late Dr. Morgan's inquiry into the *After-Health of the Oxford and Cambridge Inter-University Crews*, extending over a period of forty years, and have often quoted the result he arrived at—namely, that the vast majority of these oarsmen were benefited rather than injured by their exertions, and that, as regards heart disease, there was little appreciable difference in the mortality from this cause among these University Oars and that which prevailed among other classes of men at a corresponding period of life. It is well to remember that Dr. Morgan was dealing with a very special class of men, who were as a rule medically examined as to their fitness for the contest, and who only competed after careful and prolonged training, and did not—and this is of the very greatest importance—compete very often. The points I would insist on, as far as school athletics are concerned, are as follows :

1. That before engaging in athletic competitions involving great muscular strain, the younger boys, however good they may be, should not be allowed to compete in the longer races—mile, half-mile, and quarter-mile—against boys two or three years older than themselves, and more especially this would apply to paperchases ; here the strain is often very great. The paperchases should be graded.

2. That the effort in every case should be preceded by a period of training and preparation.

3. I would urge the school doctor to advise the successful athlete at school to make his athletic career a short one, giving up severe athletic effort within three or four years of his leaving school. It is in the frequent repetition of the muscular effort, or in the continuation of the athletic life over too long a period of years, in which the main danger lies.

Go to any of our great centres of the iron industry where the labourer has constantly day after day to lift heavy weights, or to make frequent and oft-repeated muscular exertion, and the percentage of heart troubles will be found to be enormously increased among these men, and their lives shortened by their efforts. Or learn the same lesson from lower animals, in those animals in which great muscular effort is frequently repeated, such as foxhounds, greyhounds, hunters, racehorses, diseases of the heart and blood vessels are especially common. I make these assertions on the authority of Mr. Fleming, the eminent veterinary surgeon.

For the boys who from one cause or another are not allowed to take part in the more vigorous games, such as football, paperchases, gymnastics, I hold that it is of the highest importance to provide some form of outdoor

pastime. At Oxford I advise cycling, insisting on my patients walking hills and not attempting to ride on very windy days. Golf is my sheet anchor. As to lawn tennis, I advise them to play with a partner up at the net and go in for a volleying game. Leisurely rowing, sculling, or punting may also be indulged in.

After all, the danger of athletic strain is, I believe, not very great at our public schools, where boys are well looked after and have not the chance of doing too much ; it comes later on when the successful athlete is encouraged to repeat his efforts far too frequently for his own good. Of this I am assured, and in the present day it holds good even for football.

I could say a great deal more of the evil effects of muscular strain on the lower middle classes, whose ambition in recent years has been stimulated in every shape and form to win pots and medals in all kinds of running and cycling handicaps. Fortunately, I believe, this craze is on the wane. I have now pointed out the dangers connected with muscular effort, but I do not close my eyes to the advantages gained by athletic competitions as carried on at our public schools. I hold that the advantages to health are overwhelming. I believe the physique and general health of our public school boys owe an enormous amount to school games and the taste for healthy open-air exercise these games develop. I believe these tastes developed at school often stand a man in good stead for the rest of his life. I am not going to moralise on the beneficial influence of athletics in the building up of character. This influence has been described and dilated on by head-masters and laymen in better and more forcible language than I can command, and, I may add, in a very convincing and clearly written paper read a few years ago by Dr. G. Fletcher. I take only the physical side of man, and I assert that a taste for muscular exercises in the open air will do more than anything else to keep a man young in spite of his years and able to enjoy life in the best sense of the word.

Physical Standard for the Army.

I believe it is said that the standard of chest measurement, of height and weight in the army is too high. It has always seemed to me that to attempt to judge of a man or boy's fitness to engage in any athletic undertaking requiring a high level of stamina in this way is most unsatisfactory. As a rule, long-distance runners (from three miles onward) are small, thin, wiry men ; some of our best-known champions have been very small. The same holds good of long-distance walking. Weston, the American, who started the craze of long-distance races a few years ago, and who certainly was a man of extraordinary stamina, was a short, lightly-built man, about 5 ft. 7 ins. in height, 9st. in weight. On many occasions he covered more than 500 miles in the week, Rowell, his opponent and conqueror, who on one occasion covered over 600 miles in six days was a shorter and more stoutly-built man. I believe that Weston would never have passed into our army, his weight and chest measurement would have been against him, but I should imagine he was exactly the type of man best fitted for the work our soldiers are now being called on to do in South Africa.

If we look in another direction to a body of men who for a part of the year give themselves over to often very great feats of endurance—the guides in Switzerland—it will be found that some of the most active and enduring are small men, but equal to carrying their own weight and all the extras that a guide is required to carry. The standard of height, then, ought to be a low one in the army. In my opinion your short wiry man is infinitely more able to stand the wear and tear of a campaign than your tall, finely-built man. With regard to chest measurement, I must own I am a great sceptic. It seems to me that those who attach so much importance to chest measurement overlook the fact that there are at least two very distinct types of chest—the broad chest and the long, narrow chest which cannot be measured. The lung capacity of two men of exactly the same height might be practically the same; yet their ordinary chest measurement might differ by inches. The tape only measures the horizontal diameter; it takes no cognisance of the vertical.

Lastly, with reference to weight: I remember a little more than a year ago being consulted by a young man who was coaching for the army. He was hoping to get into a crack cavalry regiment. He was well built and in excellent health. I would have unhesitatingly passed him as a first-class life for assurance. His only trouble was that he was a stone too light and he wanted to be fattened up. In other words, every effort was to be made to put a quite unnecessary stone of flesh on to a man who would be in every way healthier and more fitted for his work without it. I could not get the stone of extra flesh on him; but, as he passed well out of Sandhurst, I heard that they gave him his commission. Can anything be more absurd than this? It seems to me that if the matter of physical fitness for active service were left in the hands of competent medical men to decide each case on its own merits, without hedging them round with all sorts of standards, it would be far better. The result would be that very probably many small useful men would get in who are not now accepted, while others taller and finer in appearance might not. After all, in the matter of life assurance we get on very well without too many standards.

Intermittent Albuminuria.

To what extent I would ask does great muscular strain tend to produce or exaggerate those cases of intermittent albuminuria which are so common among young men? Let me take a typical case. An undergraduate, apparently in the very best health, seeks my opinion as to his fitness for rowing. I find all the organs healthy and the muscular development good—everything satisfactory until I come to the urine, when I discover a distinct cloud of albumen with the ordinary tests. On further examination I find that after a night's rest no trace appears, that with slight exertion the amount is very small, but after a hard row the amount is very considerable. Often the effect of exercise is so marked that while the urine first passed after exercise will contain a very distinct trace, urine passed an hour or two later will contain either no albumen or only a very slight trace. I generally advise these patients to give up all competitions involving great

muscular exertion, such as rowing in races and running in athletic sports, and to take to more moderate exercise in the form of golf or sculling or lawn tennis. Here again, if harm is done by muscular effort the injury will be of very gradual onset, and will not make itself felt for years. I take it that the explanation of this form of albuminuria is that there is some defect in the walls of the blood vessels which supply the kidney, that with the increase of blood pressure, which is the first result of muscular effort, the defective walls allow a certain amount of serum to escape, and the more often the muscular effort is repeated the more easy it becomes for the serum to transude. It would be very interesting by a systematic examination of the urine to ascertain the percentage of cases of this form of albuminuria in young adults at one or other of our large public schools. Certainly at Oxford, I am, accidentally as it were, constantly coming across cases which probably existed undiscovered at school—undiscovered because the trouble gave rise to no symptom whatever. Treatment seems to do very little good. If they have albumen in their first year of residence they invariably have it in their fourth year, and then I lose sight of them.

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Dr. M. PICARD, of Nantes, France, writes to the author: "I have first to thank you for the great pleasure and also the great profit which I derive every day from the reading of your *Dictionary of Materia Medica*. I find there, better than anywhere else, brought together and condensed, the practical indications scattered in Allen, Hering, Farrington, &c. It is a great economy of time, and in the part already published this good book replaces for me all the rest. That it is not exclusively a *résumé* of experiences on the healthy is for me of no matter; it is to me very useful and more practical than its predecessors, and it is this which will make it more and more appreciated. For these reasons, I await with lively interest the publication of the second volume."

The *Revue Homœopathique Française* of October says: "The first volume goes from the letter A to H, and contains pathogenesies of NEW MEDICINES WHICH ARE NOT TO BE FOUND IN ANY OTHER MATERIA MEDICA. THIS FACT ALONE RENDERS IT A NECESSITY FOR PRACTITIONERS TO PROCURE THIS USEFUL VOLUME."

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THE LATE DR. JAMES COMPTON BURNETT.

A most distinguished member of our school has been lost in the death of Dr. John Compton Burnett. If, as the writer of the obituary in the *Homœopathic World* tells us, he was directly descended from the celebrated Gilbert Burnet, who resigning his professorship of divinity of Glasgow University left his native Scotland and settled in London in 1674, Dr. Compton Burnett* had inherited some of the intellectual and moral characteristics of that remarkable prelate. Gilbert Burnet had, according to the just estimate of Macaulay, "a fertile and vigorous mind, and a style, far indeed removed from faultless purity, but always clear, often lively, and sometimes rising to solemn and fervid eloquence." "His religious zeal, though steady and ardent, was in general restrained by humanity and by a respect for the rights of conscience." He was so remarkable for the vastness of his knowledge of all subjects, that he was looked upon as a living dictionary; he was distinguished as well by the readiness of his tongue and of his pen, as by the frankness and the boldness of his nature, "a frankness which could keep no secret and a boldness which flinched from no danger."

The reader, who has watched Dr. Burnett's career and studied

* The surname seems originally to have been spelt with one t: how it came to have an additional t is for the curious to ascertain.

his numerous works, will see how the doctor had most of the gifts which distinguished the divine,—gifts which enabled both to wield a powerful influence for good over their fellow men.

James Compton Burnett was born at Redlynch, an ecclesiastical parish in Wiltshire (not far from Salisbury of which the great Gilbert Burnet was bishop), on the 21st July 1840. He was not born of poor parents as his father was a considerable landowner of his parish. After receiving an ordinary education he went at the age of sixteen to France where he remained in school for three years. Then he travelled chiefly in Europe for several years in quest of knowledge. His favorite subject was philology for which he had such a passion that he had almost decided to devote his life to it. If this decision had been final he would undoubtedly have taken high rank in this department of knowledge, but homœopathy would have been deprived of an enthusiastic advocate and the patient world of a most successful physician. Fortunately he decided for medicine, for the study of which he went to Vienna. He was so fascinated with anatomy that he devoted two additional years to its study. He was soon a favorite of the professors for whom he prepared several valuable specimens which are preserved in the Pathological Museum of Vienna. From a student he became an assistant of the celebrated Skoda. He obtained the degree of Bachelor of Medicine (M.B.) of the Vienna University in 1869. He then came to Glasgow and studied in the University till 1872 when he obtained its M.B. degree. "Passing through a brilliant examination in anatomy, lasting one hour and a half, the professor shook hands with him saying, that he had never examined a student with so brilliant and thorough a knowledge of anatomy. The same professor on hearing later that he had decided to become a homœopath, entreated him to alter his mind, saying he was convinced that he would reap all honors in the medical world, and that he was throwing his life away." His reply was "that he could not buy worldly honors at the cost of his conscience." This accounts for his not obtaining the M.D. degree till four years later. The thesis that he wrote for the degree displayed too much of homœopathic proclivities to be acceptable to the examiners. In 1876 he tried again, was more prudent, as he avoided all mention of homœopathy in his thesis, and was successful.

After obtaining the M.D. degree Dr. Burnett practised for a short time at two places in Cheshire, Chester and Birkenhead. He then removed to London in 1877 where he was soon able to establish a most extensive successful practice. Nothing succeeds like success. And the remarkable successes he achieved in effecting cures of given up cases went a great way in lessening the virulence of opposition of the old school to the new.

Shortly after settling in London Burnett's pen began its activity, and in the course of a couple of years produced two remarkable essays, *Natrum Muriaticum* in 1878, and *Gold as a Remedy* in 1879, which established his reputation as a writer of no ordinary ability with a charming style, and as a physician of thinking and research. This induced the proprietors of the *Homœopathic World* to appoint him editor of the Journal in succession to Dr. Shuldhham who had succeeded Dr. Ruddock three years before. Dr. Burnett occupied the editorial chair from August 1879 to April 1885, which he was obliged to give up on account of increased practice, and which is now being so worthily filled by Dr. John Henry Clarke. The first editorial that he wrote, as a manifesto or public declaration of his medical creed, is a remarkable production, from which we give the following extracts to exhibit the essentials of that creed, which will be found in spirit that which we gave out in 1868.

While *Similia similibus curantur* is thus our one cardinal doctrine, we do not consider that all medicine was a blank before Hahnemann thought it out and worked it out, or that all medical progress was interred with him ; for us, it is neither the in-all, nor the be-all, nor the end-all of practical medicine—it is the truth, but it is not all the truth.

Inasmuch as we have satisfied ourselves of the truth of the doctrine of drug dynamisation, it follows that we believe in the efficacy of the small dose and of the infinitesimal dose. But we also believe in that of the large dose and of the medium dose ; the actions of the different doses of the same drugs would, however, appear to be not always identical. This is a great question, and lies as the underwork of a great building that is to be : we can only hope to help to bring up a few bricks. The great architects and builders are few and far between.

Hahnemann's tripartite pathology is a subject that we have not yet been able to appreciate : psora, syphilis, and sycosis we, indeed, see every day, but only through a glass darkly—i.e., in a Hahnemannic sense. Still we have heretofore constantly found him right where we have been able to test him.

The epidemic genius of disease constitutes, we think, an almost totally neglected branch of practical medicine ; we should be specially pleased to

see earnest workers in this great field, and contributions on this subject would be very welcome. We shall never cure fevers until we know more about the epidemic constitutions of disease.

* * * *

The *Homœopathic World* will continue to be for the people and for the profession ; we have yet to learn that judgment and intelligence reside either peculiarly or exclusively with the one or the other. It will also continue to be exclusively a homœopathic publication, nevertheless we will willingly open our pages to all those *real* truth-seekers who may have satisfied themselves experimentally, and who may be, therefore, desirous of proving either the superiority of Allopathy, or of any other pathy, the falseness of Homœopathy in part or wholly, or the falseness of the doctrine of drug dynamisation, or the unreliability of the infinitesimal dose.

We do not mean mere subjective opinions clothed in the robes or superlative sapience and dogmatism, and cloaked in pseudo-scientific verbiage, but actual experiment.

So late as 1888, in his *Fifty Reasons for being a Homœopath*, written for an old school physician, he gives expression to the same catholic views in the Preface : "My position in medicine is essentially individualistic nevertheless, and Virchow, in his *Autoritäten und Schulen*, says that to which I fully subscribe, viz., 'Die Parteigängerei der Schulen lässt sich nur dadurch auflösen, dass man die Einzelnen emanzipirt, dass man ihnen das Recht und die Mittel der Selbstbestimmung, nicht dadurch, dass man alle in eine einzige Partei, ein einzige Schule, eine einzige Heerde Zusammentreibt'" [The conflict of rival schools could be brought to end only by emancipating each individually, by granting them the right and the means of attaining their own end, not by forcing (driving together) all into one single party, into one single school, into one single herd.]

Dr. Burnett lived in London for several years, but his consulting practice gradually becoming very large he could give up much of his ordinary practice. This enabled him latterly to reside in Brighton, away from the bustle and turmoil of London where he kept only consulting rooms at Finsbury Circus, E. C., and at Wimpole Street, W., for Mondays and Fridays, Tuesdays and Thursdays, taking as much rest as his nature would permit on the remaining days of the week in home life.

He died suddenly on the evening of Monday, the 1st of April last, at the age of 60 years and 9 months which is comparatively an early age for an Englishman of good constitution. From what he said about four weeks before his death in answer to a friend's inquiry

after his health—"You can't work a horse too long, but it will fall," and from the fact of his having made a new will just after a brother's death which had affected him deeply, and which took place only a fortnight before his own death, it would appear that Dr. Burnett was probably apprehensive of his approaching end. On the Sunday preceding his death while taking his usual walk he felt a pain in the chest and had to turn back before finishing the walk. "In response to the anxiety of his family he said he thought it was only a little indigestion, 'though,' he added in his casual way, half speaking to himself, 'it's rather like angina pectoris.' He persisted in going to town the following day, and no one noticed any falling off in his work." "He dined as usual at his hotel, and as he retired to his room seemed in exactly his usual state. It was only in the morning (of Tuesday), when his breakfast and his cab were kept waiting, that the sad discovery was made that he must have passed away just as he was retiring to rest. The holiday he had denied himself so long had come at last, but in a way that prostrated all his loved ones with grief. The great heart had worn itself out." Yes, as the death was so sudden it must have been the worn-out heart that had given way. This is corroborated by the fact that "of late it had been noticed that he was unusually deliberate in going upstairs, and the night before he died some patients on whom he called noticed that his hands were icy-cold, a thing unusual with him." Thus literally did Dr. Burnett die in harness, as he had hoped he might.

The following appreciative notices from the *Times* and the *Westminster Gazette* will be read with interest :

"By the sudden death of Dr. JAMES COMPTON BURNETT, of 86, Wimpole Street and 2, Finsbury Circus, London loses one of its most prominent physicians, and homeopathy a leading exponent. Dr. Burnett was an M.D. of Glasgow University and also of Vienna, at which city he spent several years, both as a student and as assistant to the celebrated Professor Skoda. He began practice in Chester, and removed later on to Brixen-head whence he came to London. He was for several years editor of THE HOMEOPATHIC WORLD, which post he relinquished in 1885 owing to the demands made upon his time by his increasing practice. Burnett was a ripe scholar and a very prolific writer on medical subjects. His familiarity with the medical literature of Germany and France enabled him to draw on sources of information not open to all. Among his best-known works are *The Cure of Consumption by its own Virus*, *Gout*, and *Diseases of the Spleen*. The force of his personality was felt by all who came in

contact with him, and his patients were attached to him in a more than ordinary degree. His devotion to his profession was the absorbing passion of his life. For many years he had taken no holiday longer than five days at a time and it is probably to this excessive strain that the sudden failure of his powers is due. The cause of death was disease of the heart. He leaves a widow and family."—*Times*, April 5.

"Many will regret to hear of the death of Dr. James Compton Burnett, of 86, Wimpele Street, and 2, Finsbury Circus. Dr. Burnett was found dead at his hotel (Holborn Viaduct Hotel) on Tuesday morning [April 2nd]. He took the M.D. of Glasgow in 1876, having previously taken the M.B. degree of Vienna in 1869. He began practice in Chester and afterwards practised in Brikenhead, before coming to London. He was for several years editor of *THE HOMŒOPATHIC WORLD*, and was for a short time on the staff of the London Homeopathic Hospital. For many years he has carried on one of the largest consulting practices in London and his sudden removal has caused widespread dismay among his *clientele*, who were attached to him in no common degree. He was the author of many works on medical subjects and was the greatest living exponent of the Paracelsic doctrine of organopathy, especially as set forth in the works of Rademacher. He had the true literary gift, and his writings bear as well the stamp of his strong personality and therapeutic genius."—*Westminster Gazette*, April 4.

The writer of the obituary in the *Monthly Homœopathic Review* has given the following excellent character sketch which we reproduce with pleasure :

"His personality and character were very uncommon, and we had almost said unique. He was a remarkably strong character of a rugged massive type, straight-forward and direct to a degree. He could stand no half measures, and spoke freely what he felt, not caring what others thought of what he said, so long as he was sure he was right. His massive head and keen powerful expression of face fully bore out his mental and moral character. He had an immense power with his patients, a magnetic personality which impressed all who consulted him, and gave them the utmost confidence, in him. He had not only this gift of inspiring confidence, but also of eliciting real attachment and admiration, the most valuable gift that a physician could possess. He was pre-eminently a strong man in the highest sense of the term, and what brought out his full power and strength was his enthusiastic devotion to his profession, and especially to homœopathy. This was, we might say, the life of his life, and anyone could see, his patients especially, how staunch was his belief in homœopathy, and in its wonderful curative powers."

Such was James Compton Burnett as a physician and a man. He is dead but he will live long in his works. These are numerous and of sterling merit. They ought to be collected and published together. No one is better qualified to edit them than his friend Dr. John Henry Clarke.

HAHNEMANN'S DOCTRINE OF SYCOSIS
ILLUSTRATED.

BY W. YOUNAN, M.B., C.M. Edin.

As every reader of the "Chronic Diseases" knows Hahnemann taught that chronic disease owed its origin to one of three miasms—Psora, Sycosis and Syphilis.

To say nothing of Psora, which so many men in the ranks of Homœopathy in the present day consider "an unfortunate business" and a serious bar to the more general acceptance of Homœopathy by the profession, Hahnemann's doctrine of Sycosis is doubted by not a few of his disciples. By Sycosis we understand that morbid constitution induced by the gonorrhœal poison, especially when inappropriately treated. Those who believe that gonorrhœa is merely a local contagion refuse to admit that any general or constitutional morbid condition can be set up by it. The following case will, however, speak for itself and demonstrate the entire truth of Hahnemann's doctrine of Sycosis: About the end of 1894 I was consulted by a young man, 36 years of age, who suffered from recurring attacks of Inflammatory Rheumatism for 18 years. He told me he had exhausted the little fortune he had in doctor's fees and dispensary bills without benefiting his health at all. As a last resource he wished to try Homœopathy as he had heard it was good for chronic disease. For eighteen long years, at longer or shorter intervals, he would be laid low with sharp attacks of Inflammatory Rheumatism of one or more joints, attended with considerable synovial or bursal effusion.

One of the first questions I put him was whether he had ever suffered from gonorrhœa, which had been removed by harsh measures. He told me frankly that in his early manhood he had contracted the disease, and that it was *cured* (?) by an astringent injection—no bad consequences were noticed for some time after. He was a very strong man physically and thought nothing of "a dose of clap," so ordinary an occurrence in the lives of so many young men unfortunately. But nemesis found him out at last, and he commenced to have inflammatory affections of the smaller joints of the feet, which were then diagnosed as attacks of gout. Every succeeding attack saw an involvement of the larger joints, one or more of which would be simultaneous.

ly affected. The doctors told him that nothing more could be done for his chronic disease, which they had so long tried their best to cure. Was a cure possible under homœopathic treatment? asked the despairing patient of me. I dared not reply in the affirmative, for the simple reason that I was then almost a beginner in Homœopathy and had never prescribed for a similar case homœopathically. But the patient had placed himself entirely in my hands and I determined to give the case my serious attention. In Lippe's Repertory of the Characteristics of the Materia Medica I found what I so eagerly sought—the rubric *rheumatism from suppressed gonorrhœa*, under which Sarsaparilla was an important remedy. Accordingly I gave the patient a single dose of two globules of the 200th potency in sugar of milk, warning him of possible primary aggravation of his rheumatism and of a restoration of the gonorrhœal discharge, the suppression of which 18 years ago had been the origin of his chronic sufferings.

We had not long to wait for the fulfilment of the first part of my prophesy, for the patient went down with a sharp and almost general attack of inflammatory rheumatism. How often he begged of me to quickly relieve him of his pains, and how often I had to assure him that it was necessary for him to become worse before he could be better, as his attacks had hitherto been suppressed with local applications and large doses of medicines like the Salicylates, Colchicum and the Iodide of Potassium.

A symptom occurred in this attack, which was never noticed before—the urine contained a heavy deposit of white sand, which caused difficulty in micturation especially at the end of the act. The patient was naturally alarmed, but I assured him that he was all the better for having so much uric acid removed from the system, this being generally believed to be the cause (?) of rheumatism. It would not be an exaggeration to say that the sandy deposit in the urine was so copious that it could have been taken up by the spoonful. This went on for weeks, until one morning the patient complained of a scalding during passing water, and I then suspected what was coming. In a day or two a slight urethral discharge was established, which gradually grew worse until a thick green discharge as copious as an original gonorrhœa remained for weeks. With the return of this primary trouble the rheumatic inflammation began to abate, and when the

last of his Sycosis was seen the patient was able to leave bed and went into a more complete convalescence than he had done after any of his previous attacks. I watched his case for some years after, and, though he needed a few other remedies for slight attacks of his old complaint at long intervals, his general health was considerably improved, and he remained an admirer of Homœopathy and a firm believer in it.

If this patient had not had the necessary patience to go through a prolonged attack of his rheumatism and to give Homœopathy a determined trial, nothing could have been done for him. The Sycotic poison had remained hidden in his system for eighteen years, and was in a wonderful way released and brought out by the homœopathic antidote. No body can gain-say the relation of cause and effect here, and Hahnemann's teaching as to the origin of one variety of chronic disease, the sycotic, is I hope abundantly proved. The master's conception of Chronic Disease is so unique, and supplied such a want in the medical knowledge of his day that his earlier disciples and followers considered it as his masterpiece. Many of us, however, his later disciples and followers, do not attach the same importance to Hahnemann's theory of Chronic Diseases, and even discredit the greater part of it. To my humble mind such an attitude towards perhaps the greatest medical theory of the age is not only unfortunate but detrimental to the whole system of Homœopathy. Prior to Hahnemann's time no treatment of chronic disease existed, and it is due to his far-reaching genius that we possess such a wonderful therapeutics of chronic disease.

If disease miasms can be shown to so profoundly affect the system as to produce chronic diseases that may last a lifetime and even become hereditary, and if drug action can be made to dig out, as it were, these miasms hidden away in the very depths of the constitution, and by so doing restore sick people to their original health, Hahnemann's theory of Chronic Diseases has much to recommend it. We have seen this illustrated in the case of the Sycotic miasm—the whole profession believe in the syphilitic miasm causing its own variety of chronic diseases—there remains, however, the most important miasm of all, the Psoric, and to its elucidation Hahnemann brought his ripest knowledge and experience. It is a pity that so many in our school reject

entirely or in part the theory of Psora. I could never see the difficulty of accepting it in its entirety, and in actual practice how often has it not been illustrated and verified. For my own part, who have been such a sufferer from hereditary Psora, I thank Hahnemann daily for his doctrine of chronic diseases, and I owe my health and happiness to the judicious use of his anti-psoric remedies.

[Dr. Younan laments that while the early disciples and followers of Hahnemann looked upon his theory of chronic diseases as his masterpiece, many of his later disciples and followers do not attach the same importance to it and even discard the greater part of it. We think we state the fact when we say that Hahnemann's doctrine of chronic diseases has divided the homœopathic branch of the profession from the very beginning,—some of his ardent disciples viewing it as infallible gospel truth; others of his contemporaries seeing in it a mixture of fact and speculation; while others again, very few, regarding it as altogether false, and a departure from true homœopathy. We have representatives of these shades of opinion in respect of this the latest work of the Master, in the present day. We do not belong to the class who do not attach any importance to the theory, but we must confess we belong to the class who believe there is much valuable truth in it, but not the whole truth. The theory is not new, having, on Hahnemann's own showing, existed long before him; indeed he derived his idea of it from his predecessors whom he gives due credit. It was his merit to have developed it and shown its practical relation to homœopathy. But in this matter his natural enthusiasm carried him to excess, and we think he made a too hasty and sweeping generalization, when he ascribed the causation of all non-syphilitic and non-sycotic diseases, *seven-eighths*, according to his estimation, of all the vast variety of chronic diseases, to one miasm alone. We believe that modern research, aided by the light of homœopathy, is destined to show that besides syphilis and sycosis, and like them, many true chronic diseases are specific in their nature and originate from distinct specific miasms, and that the itch-miasm is not all in all.—EDITOR, *Cal. J. Med.*]

PUNSAVANA; OR THE CAUSING THE BIRTH OF A MALE CHILD.

BY DR. SURENDRA NATH GOSWAMI, B.A., L.M.S.,

(Continued from Vol. xx, No. 2, p. 60.)

The *Gauri* is situated in the warmer side of the body and the *Chándramasi* belongs to the cooler part. Hence the doctrine that the male sex belongs to the warmer, *i.e.*, the right side of the body and the female sex to the cooler, *i.e.*, the left side, is indirectly established (44).

The doctrine of heat and cold is also supported by *Susruta* and this will appear more clearly from the following lines, borrowed from the *Saradatilaka Tantra* (45).

The doctrine of discharge of the male ovum, one month and the female ovum the next month, and thus alternately, can also be explained from the Sanskrit texts when we judge minutely the functions of the *Gauri* and *Chándramasi*, along with the following two lines in which the word *Dimba* or seed has been used in the singular sense (46).

Hence the alternate character of the discharge can be safely inferred. For one seed cannot be discharged from two different organs at one and the same time.

The relative age of the parents according to Haffacker and Sadler forms the principal ground upon which the preponderance of one sex over the other is made to stand.

44. दक्षिणांशः सूर्यः सूर्यो वामभागो निशाकरः । सारदातिष्ठके

45. अग्निमोमात्मको देहो विन्दुर्यदुभयात्मकः

शुक्रमग्निरूपं रक्तं सोमरूपम् ।

46. जरायुपार्श्वं नाद्यौ द्वे डिम्बनाद्यौ प्रकीर्तिते ।

डिम्बकोषद्वयात् डिम्बं नयते गर्भकारणम् ॥ अत्रिः

(आयुर्वेदार्थचन्द्रिका) —

44. The right side is governed by the sun, the left side by the moon.

45. The body partakes of the nature of both heat and cold; the reproductive elements are therefore a mixture of the two. The semen is fire-like and the menstrual discharge moon-like.

46. The two tubes that originate from the sides of the uterus are called *dimbanádi*. They convey the female seed from the two seed-producing organs, for the purpose of generation.

“If the male parent is older the offsprings are preponderatingly male; but if the parents are of the same age or if the male be younger the proportion of female offsprings become abundantly very great.”

This view is also supported by men like Gockhart Boulonger and Legeyt. Some breeders of horses, cattle and pigeons even accepted it. But the subsequent statistics of Stieda and Berner lead one to arrive at a different conclusion. In spite of these contradictory remarks, we will state here fully the views of our countrymen about what should be the proper age of the parents, so far as the question of physical maturity is concerned. Sexual union between husband not less than twenty years old and wife not less than sixteen is recommended as the best period. Inequality of age, between husband and wife, is allowable where the husband is the older of the two. But where the case is reversed, it meets with strong opposition almost everywhere. (47&48).

47. पूर्णषोडशवर्षा स्त्री पूर्णविंशतं सङ्गता ।

शुद्धे गर्भाशये मार्गे रक्ते शुक्रोन्निवे हृदि ॥

वीर्यवन्तं स्रुतं स्रुते ततोऽनूनाद्भ्योः पुनः

रोग्यत्वायुरधन्यो वा गर्भाभवति नैव वा ॥

वाग्भटः शारीरस्थानम् । म कः

षोडशवर्षायाः पञ्चविंशतिवर्षः पुत्रार्थं यतते—अरुणदत्तः

48. रजःखलामकामाञ्च मलिनामप्रियतमां वर्षद्वयं त्रयोद्वयं तथा व्याधि-
प्रपीडितां क्षीनाङ्गीं गर्भिणीं द्वेष्ट्यां योनिरोगसमन्वितां संगोत्रां गुरुपत्नीञ्च
तथा प्रव्रजितामपि नाभि गच्छेत् पुमान् नारीं भूरिवैगुण्यशङ्कया—भावमिश्रः

47. At the time of conception, if the age of the wife be full sixteen, and that of the husband full twenty, and if the site and passages of the uterus be in their right condition, besides, if the menstrual discharge, semen, vital air, and the heart be in their normal character, she will beget a strong healthy male child. In case their ages fall short of that spoken of, the child becomes either diseased or shortlived or ill fated; it sometimes so happens that even conception does not take place at all.

With the object of securing a male child a man of twenty-five must seek the company of a woman of sixteen.

48. From fear of engendering many defects (in the offspring) a man should not have intercourse with a woman if she is menstruating, if she proves disinclined, if she is dirty, is disagreeable, is

Mayerhofer does not consider the age of the parents as a satisfactory test for their physical maturity. He maintains that one can easily attain to physical maturity, by an economy of the semen, by an infrequent sexual intercourse, and lastly by a careful selection of a good nutritious food (49).

If Mayerhofer's doctrine has any value upon the question of determination of sex, we shall be glad to quote parallel views from the writings of our own countrymen in which the practice of *Bramhacharyya* or sexual abstinence forms the guiding principle.

In Western science, the time of fertilisation has been greatly insisted upon. Thury followed by Düsing holds that the sex of the offspring depends on the period of fertilisation; an ovum, fertilized soon after liberation, produces a female, while the fertilisation of an older ovum produces a male. We find in *Susruta* almost kindred ideas (50).

49. ततोऽपराह्णे पूमान् मासं ब्रह्मचारी सर्पिःस्निग्धः सर्पिःक्षीराभ्यां
शाल्योदनं भूत्वा मासं ब्रह्मचारिणीं तैलस्निग्धां तैलमाषोत्तराहारां नारी-
मूषेयद्राक्षी—सुश्रुतः शरीरस्थानम् २५ अः २८ श्लोकः

50. नारीमूषेयाद्राक्षीं सामादिभिरभविश्वास्त्य विकल्पैश्च चतुर्थ्यां षष्ठ्या-
मष्ट्यां दशम्यांद्वादश्याञ्चोपेयादिति पुत्रकामः

अलोत्तरोत्तरं विद्यादायुरारोग्यमेव च

प्रज्ञासौभाग्यमैश्वर्यं बलज्ञाभिगमात्फलम् ।

born of a superior caste, or is older in age, diseased, defective in limb, is pregnant or loathsome or subject to diseases of the reproductive organs, or is of the same blood, or if she is wedded to one's spiritual guide, or if she is an ascetic.

49. Then in the evening the husband, after abstaining from sexual abstinence for a month and after anointing his body with clarified butter; and then partaking of *Sali* (autumnal) rice with clarified butter and milk; should seek the company of his wife at night, who after observing the same abstinence has anointed her body with oil and has partaken of food prepared chiefly with oil and the *masha* pulse (*Phaseolus radiatus*) &c.

50. Seek the company of the wife at night having tried to gain her confidence with soft words. If desirous of having a male offspring, one must conjoin with his wife on the fourth, sixth, eighth, tenth, or twelfth night since the appearance of the menses. One ought to

But *Charaka* advocates the observance of at least seven clear days, instead of four, if a male sex is to be produced (51&52).

This wise injunction of *Charaka* shews, on the one hand, the practical value of Thury and Dusing's theory of late fertilisation as productive of male births, and on the other hand, the importance of Hensen's views, about the double chance of producing a female offspring when a fresh sperm is allowed to fertilize a young ovum.

The theory of Starkweather is almost identical with what we call the doctrine of *cross heredity of sex*. It means that the sex is determined by the superior parent, but the superior parent produces the opposite sex. Dr. Clarke's theory of *labour of love* and *relative ardency* is partially based upon the same principle. The Hindu method of postponement of sexual congress till the end of the first week of the menstrual epoch, preventing on the

अतः परं पञ्चम्यां सप्तम्यां नवम्यामेकादश्याञ्च स्त्रीकामः त्रयोदशी प्रभृतया निन्द्याः—सुश्रुतः शा-२अः १० श्लोकः

51. षोडशे दिवसे गर्भो जायते यदि सुभ्रुवः

चक्रवर्त्ती भवेद्राजा जायते नाहं संशयः । शिवगीता

52. तथा भर्ता न च मिश्रीभावमाप्नोति याताम् । इत्यनेन विधिना सप्तरात्रं स्थित्वाष्टमेऽह्न्यान्नाद्याङ्गिः सशिरस्कं सह भर्ता चाहृतानि वस्त्राण्यच्छादयेत् । अवदातानि अवदाताश्च स्त्री भूषणानि विभृयेत् । चरकः शा ८अ ।

52b. ततस्तौ सहसंसेतामष्टरात्रं तथाविध परिच्छदावेव च स्थातां तथेष्टपुत्रं जनयेताम् ।—चरकः शा ८अ ।

know that with regard to the above specified days, the later the union the greater is the chance of long life, good health, good luck, riches, and a vigorous body for the offspring.

If desirous of having a female child the fifth, seventh, ninth, or eleventh night is regarded as the most propitious. The thirteenth and the following nights are blameable.

51. If conception happens on the sixteenth day of the menses the child may be an emperor, but undoubtedly would become a king.

52. And husband and wife should not mix with each other. So, in this way passing seven nights, on the eighth day after bathing with the husband wholly immersed in water, the wife should put on white apparel, white garments, and ornaments.

52b. Then thus dressed they should live together for eight nights, so that they might beget the wished-for male child.

one hand, the young semen from fertilizing a young ovum, helps on the other, the previously discharged ovum to reach its highest state of perfection, and to acquire a comparatively greater physical superiority over the male sperms. So, the natural consequence of this delay is the perfection of the ovum and its ultimate conversion into the opposite male sex.

But if we now rely on the doctrine of St. Hilaire, we shall be driven to just the opposite conclusion, *viz.*, the male sex is most common in the scantily nourished mothers, and the female in those of a heavier weight. The observations of Giroué, Wilkens, Landois, all support the same view. Hindu authors are believed to have made the same observation. Finding that the spare diet of the mother exerts a great influence over the sex of the future individual, they have enjoined upon Hindu society certain rules for regulating her diet, before and after the appearance of the menses; these partaking of the nature of *Brahmacharyya* or sexual abstinence as well as consumption of scanty meals. In short, the females at the appearance of the menses should not be allowed to enjoy the company of their consorts for at least a week. They should also suffer themselves to remain confined within the four walls of their own rooms, in order to keep them off from the bustle and turmoil of the world outside, and from the luxuries of the table (53).

53. ततः पुष्पक्षणादेव कल्याणध्यायिनी त्रिहम् ।

वृजालङ्काररहिता दर्भसंस्तरयामिनी ॥

क्षैरेयं यावत् स्नोत् कौटशोधनकर्षणम् ।

पर्यं शरावे हस्ते वा भूञ्जीत व्रज्याचारिणी ॥

चतुर्थेऽङ्गे ततः स्नात्वा शुक्लमाल्याम्बरा शुचिः ।

दैव्यनी भर्तृसदृशं पुत्रं पश्येत् पुरः प्रतिम् ॥

वाग्भटःशरीरस्थानम् १ म वः

53. From the appearance of the menses the wife should, for the first three days, meditate upon blissful subjects, abstain from washing and from putting on ornaments, should lie upon a bed of *kusha* grass (*poa cynosuroides*), should live sparingly upon food prepared with milk and barley, and upon such food as acts upon the alimentary canal as

We shall refer to this subject of diet again, when we discuss Professor Schenk's theory of the influence of nitrogenous food on the question of evolution of sex in the offspring.

We have so far tried to defend the theories of sex that belong to the first group of our classification, on the ground, that we find almost kindred doctrines in the writings of our own countrymen. But this sort of defence cannot be said to be always logically conclusive; the inferences we ourselves have drawn are, by no means, undisputed. Besides, the quotations we have given have been taken at random from all sorts of Ayurvedic works, which profess to be the results of the spiritual inspirations of the Aryan sages, or are mere idle imaginings of ordinary book-mongers. Our belief is that there cannot be in the writings of the Indian Rishis anything of the character of legendary tale and meaningless folklore. If we then meet with in works which profess to have been the productions of our Rishis, such as *Charaka* and *Susruta*, any such counterfeits, we must not try to pass them off as true coins. They are certainly interpolations and should be rejected as such.

aperient and corrective (of the secretions), taking the food on a leaf or an earthen dish or from her hand, and should practice sexual abstinence. On the fourth day, after bathing and making herself clean, she should wear white garlands and white apparel, and meet her husband first, so that the child may be like the father.

(To be continued.)

EDITOR'S NOTES.

The Pathology of Alopecia.

Buschke (*Berl. klin. Woch.*, No. 53, 1900), following up the observation of Giovanni that patients to whom he was administering acetate of thallium became affected with alopecia, has studied the effect of small doses of this drug on mice given in their food. The result of its administration was that the hair came out on different parts of the body. This effect was not due to any appreciable local action of the drug on the skin, but in Buschke's opinion to certain disturbances affecting the peripheral nervous system of a trophic nature.—*Brit. Med. Journ.*, May 11, 1901.

Fœtus Retained Two Years in the Uterus.

Landucci (*Centralbl. f. Gyn.*, No. 5, 1901) relates the case of a woman aged 31 who was seized with pains and smart hæmorrhage at the sixth month; but these symptoms ceased gradually, and the fœtus remained in the uterine cavity for fully two years. During that period symptoms of pelvic inflammation appeared frequently, with vaginal discharge and diarrhœa. The period was regular. A recto-uterine fistula developed and blood and bones were discharged. The uterus was of the normal size at the third month; it crepitated on pressure, and was fixed to the rectum by adhesions. The cervix had become strictured by caustics. Landucci split the cervix transversely, and opening the uterine cavity extracted the bones of a 6-months fœtus with some difficulty. The bones were in part embedded in the uterine wall, and were completely deauded of soft structures. The utero-rectal fistula closed of itself within a short time after the operation, and ultimately cure was complete.—*Brit. Med. Journ.*, May 4, 1901.

The Action of Morphine on the Stomach.

A. Hirsch (*Centralbl. f. inn. Med.*, January 12th, 1901) draws the following conclusion from experiments on dogs in which a cannula had been permanently fixed in the duodenum: (1) In doses of 0.01 gram (about $\frac{1}{8}$ gr.) or more per kilo. of body weight, morphine when injected hypodermically causes the gastric contents to be retained for hours; (2) this inhibition of expulsion is due to persistent spasm of the pylorus; (3) as long as the pyloric spasm lasts there are powerful peristaltic movements of the pyloric portion if the stomach is full, or

weaker movements if the stomach is empty ; in either case the cardiac end of the stomach remains at rest ; (4) the secretion of HCl is at first diminished, but later is abnormally large ; (5) the pyloric spasm and the peristalsis of the pars pylorica are due to a stimulation of the centres for the contraction of the pyloric sphincter and pars pylorica situated in the corpora quadrigemina ; (6) the initial inhibition of secretion of HCl is probably produced locally by the excretion of morphine through the gastric glands ; the later hypersecretion is probably of central origin. The clinical observations of Riegel and others show that the effects of ordinary doses of morphine in man are: (1) Delayed expulsion of the gastric contents ; (2) initial diminution and later increase of the secretion of HCl, both of which are proportional to the dose ; (3) a dose given hypodermically produces much more marked disturbances than an equal dose given by the mouth. Since these observations agree in the main with the results of the writer's experiments, it is probable that morphine produces in man, as in animals, a more or less lasting pyloric spasm.—*Brit. Med. Journ.*, March 23, 1901.

Arsenic in the Hair.

It has been found that arsenic occurs in easily detectable quantity in the hair of persons who have been taking the drug either medicinally or accidentally, as in the case of beer. The observation is of the utmost importance in affording a decided aid to the diagnosis of arsenical poisoning. A method of examining the hair by means of an ammonia copper solution containing an excess of the precipitated copper oxide has been recommended.

In patients taking small doses, the medulla of the hair will remain unchanged, as far as a half-inch objective is concerned ; but when viewed by a six-inch objective, the small green particles of arsenite of copper are seen appearing as green granules without definite shape or formation. Dr. Reid was led to think that this simple test might prove useful forensically, says the *Lancet*. In some patients the quantity of arsenic found is too minute to be estimated, but in a patient who is taking the drug medicinally, the hair was found to contain arsenic in the proportion of 0.3 in 10,000. One of the patients who had been drinking arsenical beer had present in his hair the same proportion of arsenic, while another showed as much as 1 part of arsenic in 10,000. The method employed for the estimation of arsenic consisted in first destroying the hair by means of fuming nitric acid, then dissipating the excess of nitric acid, after which the

product is transferred to the Marsh apparatus. There is abundant evidence now to show that the fate of arsenic in the body is partly in the hair, and this cannot but be of the utmost importance in medicine, especially in toxicology.—*Scientific American*, April 20, '01.

Soot and Terrestrial and Cosmic Dust.

If complexity of composition frees a substance from reproach at all that substance should be soot, for recent micro-spectroscopic analyses have shown that it contains an extraordinary number of metallic elements. Thus chimney soot was found to contain, besides iron and calcium, nickel, manganese, copper, and silver. The soot from laundries seems to contain more elements than that, from the kitchen or bedroom chimney, doubtless on account of the more complete combustion of the fuel in the laundry fire. Flue dust, besides containing the more or less common metals such as lead, silver, and copper, contains also nickel and manganese and even rubidium, gallium, indium, and thallium. Gallium appears to occur in all kinds of dusts and soots. Some dusts are clearly of terrestrial origin while others are undoubtedly of cosmic origin. Nickel occurs both in the dust from the clouds (or the dirt in the rain) and in soot, so that its presence in the former is not necessarily an indication of its cosmic origin. The dust which fell upon the earth in November, 1897, yielded a deposit identical with meteoric dust and was magnetic. The dust examined fell on a perfectly calm fine night and there was no rain for upwards of 24 hours. Its composition was totally unlike that of volcanic dust and flue dust from various industrial processes. It was therefore of meteoric origin. It has not hitherto been suggested that when London was in the throes of one of its darkest fogs it was bathed in an atmosphere of rich and rare metallic elements. But such would seem to be the case according to micro-spectroscopic methods. It should be remembered, however, that these methods discover the most infinitesimal quantities; indeed, it may be but a few molecules.—*Lancet*, April 20, 1901.

Profuse Hæmatemesis and Symptoms of Gastric Perforation without Discoverable Lesion at the Necropsy.

Mr. Mayo Robson has recently called attention to the curious fact that after hæmatemesis, so severe as to be fatal, careful post-mortem examination may fail to reveal any lesion to account for the hæmorrhage. The following case recorded in the *Intercolonial Medical Journal of Australasia* by Dr. H. G. Chapman is an example. A

domestic servant, aged 27 years, was admitted to hospital on Nov. 24th, 1900, complaining of great weakness and vomiting. Two days before admission she had vomited a basinful of blood. She had been under treatment for gastric ulcer for 17 weeks. She was extremely anæmic and weak. She had taken nothing by the mouth except ice for two days. The pulse was 120. The abdomen was tender in the upper part and there were some rigidity and retraction. She was fed for two days on nutrient enemata. An attempt to give milk and soda-water produced vomiting and was abandoned. About one o'clock on Dec. 6th she was suddenly seized with pain which was followed by vomiting. At 3 P.M. there were slight distension and marked rigidity of the abdomen. Liver dulness was completely lost. The patient was collapsed and perspiring freely. Perforation was diagnosed and laparotomy was performed at 5 P.M. The stomach was brought entirely outside the abdomen but no abnormality could be found. A search for perforation of other viscera revealed nothing. The wound was closed and a large brandy and saline enema was given. The patient did not rally but vomited "coffee-ground" material for some hours. She was given strychnine and digitalin hypodermically and saline and brandy enemata every four hours. On the evening of the next day 1500 cubic centimeters of saline solution were infused into the median basilic vein. She never rallied and died early on Dec. 9th. Though the alimentary canal was carefully examined from the œsophagus to the sigmoid flexure no ulcer or abrasion could be found. In the stomach were dark brown fluid and a few clots. There was no sign of peritonitis. Slight degenerative changes in the shape of yellow patches in the aorta and on the aortic valves were found. It was thought that specific arteritis was present and that a small vessel had ruptured into the stomach causing the hæmorrhage. But the cause of the final attack which simulated gastric perforation remains quite unexplained.—*Lancet*, April 27, 1901.

Arsenic in Stockings.

—We print an interesting communication this week in which it is shown that arsenic sometimes occurs in dyed stockings. Indeed, dermatitis has been traced to the wearing of stockings containing arsenic. The arsenic appeared to be present partly in a soluble and partly in an insoluble form. In an article in *THE LANCET* of Oct. 28th, 1899, p. 1186, we ourselves directed attention to the curious list of mineral substances that were found in dress materials. We failed, however, to find arsenic in any one specimen of the material

submitted to examination, although we found present salts of zinc, aluminium, chromium, tin, magnesium, and iron. In one case, that of pink flannel, the material was loaded with Epsom salts. The materials examined were all more or less brilliantly coloured with aniline dyes. In recording the results of this inquiry we remarked that from time to time dermatitis had been referred to the use of highly dyed fabrics, and although dyes may not be injurious *per se*, yet certain poisonous agents, such as mordants, may be used in their preparation. Thus arsenic is largely used in colour making and dyeing and the poisonous metal has been found in small quantity in coloured dress fabrics. As we have said, we failed to detect arsenic in the materials, but in spite of the fact that all the aniline colours coming from Germany have been free from arsenic since the passing of a law in 1887 there would appear to be now, in the light of this recent inquiry, a recrudescence of the employment of arsenic in the dyes used, at any rate in stockings. This fact only shows what a sharp watch must be perpetually kept up in order to check an objectionable practice. There can be little doubt that in the cases cited the arsenic in the stockings was introduced through the dye. It appears to us that it should be the rule of the dyer to obtain a guarantee from the maker of the dye that it is free from arsenic altogether or at any rate as free as it is possible to be made by the best known process of elimination. It would seem that the employment of arsenic and its compounds, or of substances contaminated with arsenic, will inevitably have to be placed under special regulations, for apparently the presence of arsenic is unavoidable in a very great number of materials. The Royal Commission on arsenic should include in their inquiry the question of the danger arising not only from arsenical food products but from arsenical clothing also, and should decide upon the limitations of the amounts of arsenic in any case.—*Lancet*; April, 27, 1901.

True Bone in the Lung.

Devic and Paviot (*Lyon. Méd.*, January 20th, 1901) have made a careful pathological examination of 2 cases in which bone was found in the lungs, and have collected from the literature 17 cases, of which details are recorded. Of the 17 cases 14 occurred in men, 3 in women; only 3 of the patients were under 40, none under 25 years of age. In no case had the occurrence been suspected during life. A few of the patients had histories of antecedent acute lung trouble, most of them, suffered either from chronic bronchitis and emphysema or from

chronic pulmonary tuberculosis. Microscopically four forms may be distinguished: (1) Ramified, Small ramified channels of bone, generally traversed by tendinous fibres, and often surrounded by small granulations. (2) Tuberos: Small rounded pieces of bone seldom larger than peas. These occur in the parenchyma of the lung or situated immediately under the pleura. This form is the one met with in the younger subjects, and is probably the most rudimentary. (3) Diffuse: Occasionally large deposits of bone are found occupying the greater part of a lobe, generally the upper lobe. (4) Plaques: Lubarsch has found bony trabeculæ in 17 cases of calcified caseous patches, especially round old necrotic cavities. The bone may occur at the base of the lung, though more frequently it is situated in the upper lobe. Cohn believes that bone may be developed from interalveolar or perivascular connective tissue. Luschka attributes the occurrence to an antecedent interlobular pneumonia. Arnsperger denies the perivascular origin. The authors found the smallest fragments of bone situated at the points of junction of several interalveolar fibres or in the interlobular connective tissue. 'As the results of their observations they conclude: (1) That the new-formed bone has no relation to the bronchial cartilages; (2) that bone may be found in any sclerosed areas, whatever their origin. Rokiiansky believes the process to be one of senile involution; many authors have attributed it to new formation. The evidence, however, of preceding or concomitant pulmonary disease, and the fact that connective tissue fibres may be traced from healthy lung tissue till they pass gradually into bone lamellæ afford a strong probability, if not an actual proof, of an inflammatory origin of the bone. *Brit. Med. Journ.*, March 16, 1901.

Aerophagy.

Lyonnet and Vincens (*Lyon. Méd.*, February 10th, 1901) divide swallowing of air or aërophagy into the voluntary form, which is a physiological curiosity, and the involuntary or pathological form which is nearly always a manifestation of hysteria. It usually occurs in hysterical young women, but 3 male cases are referred to. The symptoms are loss of appetite, swelling of the abdomen and eructations usually, but not always, noisy. Vomiting is rarely met with. Gastric symptoms may supervene after aërophagy is well established and are probably due to it and not merely associated symptoms. The symptoms described by Bouveret as neurasthenic gastro-intestinal atony may be met with. Constipation is generally present, and may

cause mucous colitis, while enteroptosis and floating kidney may occur. Considerable tympanites may result from rapidly-repeated swallowing of air. Occasionally the patients become so wasted that a suspicion of new growth arises. The eructations are preceded by rapidly-repeated deglutition movements due to pharyngeal clonus; these movements are easily overlooked and the case may then be erroneously regarded as one of flatulent dyspepsia. The eructations may, however, occur early in the morning before any food has been taken. Aërophagy may begin suddenly, and be due to emotion or shock; its duration is very variable, and cure may be brought about by the simplest means; on the other hand there may be only very temporary relief. Relapses are very likely to occur. The treatment consists of (1) the general measures directed to cure the underlying hysterical state; (2) in combating the pharyngeal spasm by keeping the mouth widely open, painting the inside of the pharynx with cocaine, and counter-irritation to the outside of the larynx. Anti-spasmodic remedies, such as bromides, valerian, and belladonna are sometimes of use; while very striking cures have been induced by "suggestion;" (3) the relief of the dyspeptic symptoms by improving the muscular tone of the stomach by strychnine and ergot. Mineral waters and gastric lavage are not of any use. The food should be given in a nourishing form and in small bulk.—*Brit. Med. Journ.*, April 20, 1901.

Cæsarean Section in a Girl aged 13.

Clarence Webster (*Amer. Journ. Obstet.*, February, 1901) recently operated on a girl aged 13, American by birth, and apparently of weak intellect. She was in the eighth month of pregnancy. The bony pelvis was of the justo-minor type, the true conjugate measured 9.2 centimetres, or $3\frac{1}{2}$ inches. A sudden attack of flooding came on, the umbilical cord had prolapsed, and the membranes ruptured. The cervix was reached with difficulty, and was found dilated to about the size of a silver dollar. It was filled with blood clots, which extended upwards into the uterine cavity. The vagina was small and resistant, and allowed of no obstetric manoeuvre. It was speedily plugged, and Cæsarean section performed. The uterus was firmly contracted on the foetus, and had never relaxed since the effects of the anæsthesia had begun. The incision was mesial, vertical, and anterior as usual; it was 5 inches in length. The foetus lay transversely with its head to the right. The placenta was attached posteriorly three-fourths to the upper, and the rest to the lower, uterine segment, and this lower attachment had separated, and thus no doubt accounted for the hæmorrhage. The wound in the uterine wall was closed with continuous chromic gut, which approximated the entire musculature. The peritoneal edges were inverted, and closed with formalin gut. The peritoneal cavity was filled with hot saline solution before closure. The patient made a good recovery. The urgent condition of the patient and the complications made Cæsarean section necessary; turning would have been impossible, and the tis-

sues of the cervix were not relaxed as at term. Rapid dilatation could only have been carried out at the risk of severe laceration.—*Brit. Med. Journ.*, April 20, 1901.

A Case of Total Extirpation of the Stomach.

In the *Deutsche Medicinische Wochenschrift* of April 11th Dr. A. von Bardeleben of Bochum in Westphalia publishes an account of the case of a woman, 52 years of age, whose stomach he removed in the Augusta Hospital in that town on August 28th, 1900, and whom he showed at a meeting of the Surgical Association of the Lower Rhine and Westphalia held in Bochum on Dec. 8th following. For a year previously to the operation she had suffered from pain in the stomach accompanied by nausea and eructation but without vomiting. Her appetite failed entirely, she lost 40 lb. in weight, and could only hold herself up with a great effort. A moveable tumour of the size of a fist could be felt to the left of the umbilicus. On opening the abdomen the whole anterior wall of the stomach from the cardia to the pylorus was found to be greatly thickened and densely infiltrated. The œsophagus was thereupon divided below a temporary ligature placed close to the diaphragm and the stomach, inclusive of both cardia and pylorus, was removed with detachment (*Abtrennung*) of the great and small omentum. The orifice of the duodenum was sutured, and the end of the œsophagus was attached laterally to the small intestine some distance lower down. The operation lasted 75 minutes, including disinfection, 20 grammes (three-quarters of an ounce) of chloroform being used. The subsequent course of the case was quite uneventful. On the evening of the day of the operation the patient drank a glass of claret, and all rectal alimentation was discontinued after the third day. The food taken thereafter was limited to eggs and soup to which peptonised meat and hydrochloric acid were added. In the second week this was supplemented by potato soup, grated ham, and the like, and the patient got up on the fourteenth day, after which her appetite increased. The first motion of the bowels, which was passed on the fifth day, was quite free from biliary colouring matter, but the second and all subsequent motions were of the normal colour. After leaving bed the patient's weight increased from 67 lb. to 84 lb. The orifices of the stomach after removal included obvious portions of the œsophagus and the duodenum. Microscopical examination showed the tumour to be colloid cancer (*Gallertcarcinom*). Dr. von Bardeleben appends a list of surgeons who have recorded cases of total extirpation of the stomach, the names being as follows: Hemmeter, Brigham, Nolle, Faure, Schlatter, Panchel, Leersum and Rotgans, de Carvalho, and Beckel. With regard to the case of Professor Schlatter he quotes *THE LANCET* of Nov. 19th, 1898, page 1314, and with regard to that of Dr. Vieira de Carvalho *The Lancet* of Sept. 15th, 1900, page 798.—*Lancet*, April 20, 1901.

CLINICAL RECORD, ..

Indian.

A CASE OF GASTRODYNIA CURED BY *NITRIC ACID*,

BY DR. AMRITA LAL SIRCAR, L.M.S., F.C.S.

N.—, Hindu, age 35, came under my treatment for fever, constipation and severe pain in the abdomen, on the 18th of June, 1900.

Previous history : The patient had been suffering from diarrhoea and very slight pain in the abdomen, for which he placed himself under allopathic treatment with little or no benefit. He had to go to a change for the same and the diarrhoea left him. There was no history of syphilis. Father died of heart disease at the age of 65, mother still living and is keeping very good health.

18th June. Examined the patient and found him to be thin and much reduced. There was no diarrhoea but on the contrary constipation was the complaint. Severe pain in the pit of the stomach, so much so that one had to press the part with a pestle for relief when the pain set in. There was no certainty when the pain would come on. Periods of aggravation or amelioration were independent of any apparent cause such as heat, cold, food etc. The fever was rather high, $102^{\circ}\cdot4$. The bowels did not move regularly. Stools hard, lumpy and insufficient. The liver was normal but the spleen was slightly enlarged. The fever was less in the morning but increased towards evening. Gave him *Nux v.* 6, to be taken twice daily. Barley water and milk were given for food.

19th June. Brother of the patient reported that the temperature was slightly less than in other days, but pain and everything else remained the same. The patient did not take milk for fear of pain. He did not like milk much, as he had left taking it for a long time on account of diarrhoea, from which he had been suffering sometime before this. He also thought that milk would aggravate his pain and bring on his former diarrhoea. Repeated the same medicine and ordered him to take milk in small quantity.

20th. Report. Fever was less, it did not rise above 100°F . The pain remained the same. *Nux v.* 30.

21st. No further improvement. There was *feeling of severe heat* in the stomach and also a *burning sensation*. *Ac. Ni.* 6.

22nd. Report. Much better, could take little milk, which he could not before this. Continued the same medicine.

23rd. Report. Pain, almost gone. The patient can now take 6 ounces of milk. Continued the same medicine.

24th. Report. Pain entirely gone. Took milk about 8 ounces. No medicine.

25th. Doing well. Quantity of milk in his diet increasing.

The patient could not take any milk, but after the pain was relieved he could take about 32 ounces of milk. The bowels moving regularly and the temperature has come down to normal.

Foreign.

A CASE OF PROGRESSIVE MUSCULAR ATROPHY, Pronounced Incurable by Eminent Neurologists, Cured by Homœopathy.

By T. F. ALLEN, M.D.

A young married woman who is a good *comrad* to her husband, an athlete, has been in the habit of entering into all his out-of-door sports, *golf, hunting, shooting*, and, especially during the past summer *swimming* (long distances), complained of pains in her right shoulder which increased until her arm became helpless; the muscles about the shoulder and right side, chest and back, wasted, so that the whole region became perceptibly emaciated, the sub-clavicular region, especially, sunken; the shoulder drooped, and if the arm were permitted to hang down, the head of the humerus would actually slip down out of its socket, often causing extra pain in the axilla and shoulder; it became impossible to put the hand to her head, so that she could not put up her own hair, nor could she dress herself. The wasting and powerlessness involved at last the whole shoulder region of the right side of the body, pectoral, scapular, and axillary regions, and the arm, as far as the elbow. Soon the trouble invaded the forearm, and also began to show itself in the right hip and thigh. Eminent specialists were consulted, electricity, galvanism, massage, and many other injurious expedients were recommended and tried with steady decline, and the husband was told that the disease could not be and had never been arrested. Finally, after the recovery of the husband's mother (in the house of an allopathic physician, who was her son-in-law) from pneumonia, complicating chronic interstitial nephritis, the husband of my patient, who had been informed by the attending and consulting physicians that his mother could not recover, appealed in despair to me to try homœopathic treatment for his wife. The symptoms of the case were as follows: 1. Pain in the right shoulder extending from the top down the arm to below the elbow. This pain was a constant dull ache, becoming, on motion, a sharp shooting; the pain was worse at night; in a wind; in the cold; on uncovering;

and when lying on the right or painful side. There was a feeling of powerlessness. (She could not raise the arm to her head, nor could she dress herself.)

How is a remedy to be selected? No cases, cured, are on record, so that clinical data are wanting. No drug has been known to produce such a condition, in its pathology (if there be any satisfactory pathology known), the etiology is obscure; only symptoms can come to the rescue.

On January 4th, a prescription was made.

January 22nd, the record states 'decided improvement, very little pain, can now lie on the right side with comfort, which, for months, she has been unable to do.

February 15th. Continued gain; the shoulder does not any more slip out of joint as formerly; she is a trifle fleshier now, over the right pectoral and shoulder regions.

February 28th. *Can dress herself*; (a great gain, naturally noticeable in the household economy); the arm gets tired only after use, but not immediately after; is growing perceptibly stouter.

March 2nd. Complains of drawing pains in the front of the right hip and thigh, finds it difficult to go up stairs on account of this pain, which has been getting worse for a week past, the whole right leg feels heavy and weak.

Calcarea carb. This prescription was effective, at once, as to the lower extremity, but it was followed by aching in the forearms and palms of the hands after any attempt to use the hands or with occasional pains about the elbow. *Return to First Remedy.*

March 30th. Great improvement, uses both arms freely now without pain; no pain at night, is able to lie on the right side without any discomfort.

Since that time there has been no return of the former troubles; an occasional disturbance of digestion, due apparently to inability to exercise as much as she has been accustomed to, has required a corrective, but lately the lady has resumed, cautiously, her active life out of doors, and is rejoicing in her renewed health, and is able to wear her evening dresses with grace and satisfaction.

Symptom—Analysis.

1. Region of the *Shoulder*.
2. Right upper extremity.
3. General weakness.
4. Aggravation from lying on the right side.
5. Aggravation from lying on the painful side.

6. Aggravation at night.
7. Aggravation after becoming cold.
8. Aggravation in the wind.
9. Aggravation from uncovering.

The above points cover essentially the totality of the symptoms. Noting the value of the remedies, on a scale of four (Bönningshausen method), under each point (values estimated by the provings, reinforced by clinical experience), we find as follows :

Nux vom., 30 ; *Phosphorus*, 30 ; *Silica*, 28 ; *Bryonia*, 27 ; *Pulsatilla*, 26 ; *Mercurius*, 25 ; etc.

These furnish a list for study and comparison. My first impression was to give *Nux vom.* first, especially in view of the stimulating, allopathic treatment, electricity, galvanism, massage, tonics, etc., but a little study convinced me of the greater similarity of *Phosphorus*, especially as the mental state of my patient was not at all similar to that of *Nux vomica* ; accordingly I prescribed *Phosphorus* in the seventh centes. potency, doses repeated three times a day for three days, after which only an occasional dose was prescribed, except when suspended to administer three doses of *Calcarea carb.* for the manifestations of the trouble in the right hip and thigh.

In regard to my failure to report, in connection with the above narrative, the results of various tests of sensation, motion and the general reactions, I can only say, that such tests in no way affected my selection of the remedy, for none of the provings have noted them and the diagnosis made by the specialists included all of them and probably many more, which served to establish their diagnosis (and prognosis), but left them wholly in the dark as to the proper treatment. The points here made is that the totality of the symptoms and not the diagnosis, in this case, at least, sufficed to cure.—*Hom. Recorder*, April 15, 1901.

Glennings from Contemporary Literature.

OUR ETHICAL RELATIONS TO MODERN QUACKERY.

BY PEMBERTON DUDLEY, M.D.

A Generation or two ago it was common to hear intimations that the influence, and incidentally the usefulness, of the medical profession depended materially upon the maintenance of a certain degree of what was called "professional dignity." This phrase, indeed, was frequently upon the lips of medical practitioners, and indicated the prevalence of a type and degree of professional self-respect of which they were intensely jealous. This sentiment affected every professional relation into which the physician entered and influenced his every-day conduct, and any evident lack of this practical self-respect, involving, as it did, a lack of respect for the profession, was sufficient to incur the sternest reprobation.

In no relation of professional life was the sense of professional dignity more keenly manifested than in its dealings with what was then denominated "quackery." The prescribing of secret nostrums was never indulged in by any physician who cared for the confidence of the medical profession, or indeed for that of the public either. The use of proprietary drugs was discountenanced with almost equal vehemence, and was practically limited to those products of the laboratory whose composition and mode of manufacture were generally understood. To advertise a proprietary drug in the newspapers or in circulars for general distribution, was to exclude it altogether from professional confidence and employment. Fulsome laudation of proprietary medicines in the advertising pages of medical journals was almost unknown. The advertising quack wrought in his own field, amidst uneducated—educated—ignorance, and did not dream of calling in the aid of respectable practitioners to assist him in exploiting his wares, as does his present-day successor. Quackery had to make its own way in the world. Self-respecting physicians absolutely refused to touch it. There was, consequently, a sharp line of distinction drawn between the practice of reputable physicians and the field occupied by the nostrum and the proprietary drug, and the act of keeping secret the mode of manufacture or the composition of any medicine claimed to possess useful properties was denounced by all codes of medical ethics and held to be a crime against human life.

What a change has come over the spirit of this ethical dream! The best practical friend the quack has to-day is the practical physician. And his second best is the practical druggist. Meanwhile the quack thrusts one hand deep into the pockets of these his aiders and abettors, while the other is industriously *relieving*, in a peculiar sense, the dear, cheap public. A large majority of present-day practitioners have no personal recollection of the old ethical *regime*, but to those who do have it the comparison with present conditions is disheartening and humiliating in the extreme. They perceive that, however medicine may boast of its advancement in certain directions, there are other lines along which it is steadily *deteriorating*, and the line of practical ethics is one of these. The writer has no patience with the spirit which would do away with a written code of professional ethics for the reason that its teachings are trite and common-place. It is the highest commendation of the code to say that its doctrines and injunctions have become familiar as a by-word to the profession. It is precisely what they should be. Either the present code of ethics or a better one should constitute an obligatory portion of every medical practitioner's education, and his close adherence to its precepts should constitute an essential passport to professional respect.

The stratagem of the nostrum-promoter, though diplomatic, is exceedingly simple. He baits his hook with a "sample," accompanies it with a (more or less) learned, but brief, discourse on the physiological and chemical relationships of the drug, adds its "formula" and is ready for his victims. It is curious to note how the average doctor "bites" at almost anything in the shape of a medicine, provided only he is told its "formula." The method reminds one of the rat traps he used to set in his boyhood, after rubbing them inside with old cheese. And then the learned discourse on the "physiological relations" of the medicine is so irresistibly enticing—or would be if it were true, and the physician, unfortunately, doesn't know whether it is or not. Large numbers of these baits are distributed over the country, labelled as a "new pharmaceutical preparation," with the result that a number (larger or smaller) of physicians are induced to experiment with it on their unsuspecting patients. With the illogical and uncertain modes of clinical observation now in vogue, it would be strange indeed if the drug did not get the credit of sometimes relieving, or even of "curing." And now comes the interesting part of the quack's performance—the hauling in of the line with the Simple Simons at the end of it, each bringing in his "indorsement"—"I have used your anti-omnibus in several cases and am greatly pleased with its operation. It affords prompt relief, with no after effects. Should be glad to receive another package as per your published circular," the latter clause being interpreted to mean "free." The whole crafty scheme and its pathetic success are a tragi-comic reminder of Shakespeare's lines :

"Fish not with this melancholy bait,
For this fool gudgeon, this opinion."

This completes the initial stage of the scheme. The subsequent steps are easy. A second set of "samples" follows the first, together with "the literature"—how sonorous!—of the subject. This literature is made up of a more elaborate discourse on physiology and physiological chemistry and of "opinions of the profession"—Heaven save the mark!—and a number of more reputable—because rather more conservative and circumspect—physicians are caught on the same hook, and a correspondingly more reputable set of "opinions of the profession" is secured. The process is continued and repeated until the so-called leaders of professional thought are entrapped—the presidents of great medical societies, editors of influential journals, professors in high-grade colleges, leading physicians in large hospitals, and even the distinguished authors of authoritative text-books—and the rank and file of the profession may be said to be at the feet of the shrewd and unscrupulous quack. The drug has been given a sort of quasi-standing and legitimacy by the endorsement of physicians of more or less repute, although it remains, as it begun, a quack medicine pure and simple and its use by medical men is a public imposture and a professional degradation.

The end, however, is not yet reached. "The quack now expects to enter upon the reward for which he has been preparing. If he has no further schemes of the kind to be promoted, the pretence that his wares are "for the profession only" is quickly dropped, and his advertisements burden the mails, are thrust under the doors of private dwellings, and are even employed by druggists to wrap up medicines honestly prescribed by honest physicians. The sales over the counter of the druggist and of the grocer are enormous; the physician is robbed of his fee by the quack whom he has befriended, the druggist misses 75 to 95 per cent. of his profits, and the customer is usually cheated out of the benefit he might have obtained had not the other two guilty participants in the scheme of fraud rendered the swindle possible.

This debauchery of the profession by the quack has been going on for a

score or more of years, and it goes on still. Spite of the lessons the profession might have learned in the past, the same bait catches the poor unsophisticated gudgeon every time. The artlessness of the medical dupe finds its only apt parallel in that of the typical farmer from "up the creek" in the hands of the typical bunco-steerer. Medical men are paying a handsome price for their folly; yet they go on in their folly still.

Recent developments indicate that a new stage is being entered upon in the evolution of advanced American quackery. This stage promises to turn over to the control of quacks the pharmacological interests of the medical organizations. The *Journal of the American Medical Association* for May 26, 1900, editorially says those interested in proprietary and secret nostrums "are actively at work with the object of getting control of the section on *Materia Medica*, Pharmacy and Therapeutics of the American Medical Association, and to accomplish this they are sending circular letters broadcast. Those addressed are editors of certain medical journals whose support comes only from their advertising pages, drug journals, and physicians whose influence they are hoping to get. Well known secret nostrum houses of St. Louis and New York are especially energetic, and spare neither postage stamps nor telegraph tolls." The evidence of this latest attempt at professional debauchery has been made light of in certain quarters, but it has been sufficiently conclusive to convince the official of the American Medical Association; and it at least shows the lengths to which modern quackery is prepared to go in carrying out its nefarious schemes. It shows also that there are those who believe it possible for quackery to take a complete possession and control of the medical profession and to make it, even more than it is now, its subservient and pliable tool. If we are wise, we will at once admit the presence and imminence of this danger and set ourselves to guard public and professional interests and welfare against it. That modern quackery will stop short of any conquest within its reach, or hesitate at any sacrifice of public welfare to gain its nefarious ends, is a proposition not worth considering. To prevent the conquest and avert the sacrifice is a duty that belongs first and mainly to the medical profession.

What method can be employed to remedy this evil which is so rapidly becoming intolerable? Any medical practitioner possessed of average intelligence should be abundantly able to perceive that professional honesty is immensely the best professional policy, and that for purely selfish reasons, if for no better ones, a return to the old sentiment of rugged self-respect would make physicians more influential, more useful and more prosperous, and would greatly enhance the health and welfare of our people. So long, however, as medical men can be found lacking in honesty to their patients, to their profession, and to themselves, so long will the quack be able to secure a physician's endorsement for the price of a sample, and fatten upon a fraud that he enjoys largely, "by the grace of the medical profession."

The writer, after long and serious consideration, believes that opposition to the growing evil he has complained of can be made effective only by organization. The corrective influence of physicians, acting as individuals, in opposition to such a system of professional debauchery must be contemptibly insignificant. But a widespread and determined association of practitioners could immediately make its influence felt and its power respected. It would not be necessary that the entire profession should be enlisted in the effort, or even a majority of it. A few thousands, perhaps a few hundreds, of our practitioners could wage a successful campaign and rapidly diminish the evil, and restore professional self-respect. There is little doubt that the retail druggists of our large cities and towns, who suffer from the evil as much as physicians do, would join in the organized

crusade. A druggist would much rather compound a prescription at a profit of 50 cents at a dollar than sell a proprietary combination at a profit of five cents or less. The interests of the two professions in this matter are plainly identical, and their combined forces would be resistless.

We need yet one more national organization—a Medico-Ethical Association—with State and local branches or chapters, composed of physicians and pharmacists, its declared objects to be the promotion of sound principles of ethics in the two professions and the discussion of questions pertaining thereto. Its members should be pledged to discourage, as opportunity offered, all practices, all teachings, and all instrumentalities found to be in antagonism to ethical principles or to the by-laws of the association, and ultimately to withhold support and patronage from those who maintain or encourage them.

It is a project in which all "schools" of medical men could consistently unite, just as they are now united in the work of public sanitation. The increased prosperity that would surely follow would enable the practitioner to give large support to his societies, his journals and his hospitals, and would enhance his ability to render the best possible service to his patients. Our duty, not alone to ourselves, but to our patients, our hospitals, our journals and our educational institutions, requires that we organize and maintain a Medico-Ethical Association.

The province of such an organization would include a careful designation of what should be held to constitute medical quackery, and what should guide the physician in determining the question of his support or non-support of any given "medicine" in the drug market. It would also embrace the consideration of questions affecting the relations which societies, colleges, journals and the retail drug trade should sustain toward "unrecognized" articles and toward questionable methods of exploiting drugs. A difficult, though quite possible, task would be to so define the *legitimate and honest* relation of the manufacturing druggist as would secure him the benefit of his skill and his employment of large capital, guarantee to the retail druggist a reasonable profit on his sales and save him the necessity of carrying his present loads of worthless stock, annihilate the present system of counter prescribing, and of indiscriminate sales of drugs of proprietary character to whoever might choose to purchase them.

It will, perhaps, be urged that this is a proper subject for the consideration and action of the great medical organizations already existing. If these bodies could be induced to devote a considerable part of their time and energies to this work of reform, they could certainly accomplish it in time. But we must remember that even if there are no members in these societies who would actually antagonize such a reformatory effort, there are very many whose indifference would seriously interfere with it in its feeble beginning. It would be far better to enlist its enthusiastic advocates in an entirely new organization.—*North American Journal of Homoeopathy*, March 1901.

TRAPS AND PITFALLS IN SPECIAL AND GENERAL PRACTICE.

Delivered before the Hunterian Society of London,

BY J. DUNDAS GRANT, M.D. EDIN., F.R.C.S. ENG.,

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Among the traps and pitfalls in general and special practice some are slight, some serious, and they may be various in character, as they affect the individual in himself, in his business, financial, social, or professional relations.

In my Hunterian Society's oration I expressed the opinion that in the practice of medicine there was enough to bring out whatever was best in any individual, if he allowed it to do so, whether his bent was scientific, literary, humanitarian, business-like, or philosophic. It may, however, from its engrossing nature, have the effect of warping and cramping his nature, so that he may lose interest in everything connected with mental, physical, social, or even moral culture, and degenerate into a mere drudge. Though this is a comparatively minor derelict, it is one greatly to be deplored. Dr. Johnson, in his dictionary, described lexicographers as "writers of dictionaries, harmless drudges." Happy is the medical practitioner who, as a drudge, can say to himself, that he has been a harmless one.

THE BUSINESS OF PRACTICE.

Though many members of the profession are careful to a degree in regard to business matters, a very large proportion are in this respect deplorably negligent. The mere rendering and recovering outstanding accounts may seem a trivial matter, and negligence in regard to this may be due to the greater interest taken by the practitioner in making himself a good workman and increasing his professional reputation rather than in collecting his fees. To show how indulgence with debtors may damage a reputation I will recall a genuine case of a patient who owed her doctor a bill and was afraid to call him in in case he should ask for it. What more natural than to summon another man, and when asked by neighbours why the medical attendant was changed, to attribute it to his carelessness, unskilfulness, or anything rather than the true cause? Again, the doctor's indulgence may lead to the patient "running up" an account which it is quite out of his power to pay.

It is as important for the practitioner to save as for any ordinary citizen, but in his case there are a few special reasons for his endeavouring to make himself independent of temptations to which the *res angusta domi* may render him liable, such as the multiplying of visits and consultations or the performance of avoidable operations. What practitioner has not at some time or other had to refuse the liberal payment offered him for the removal of the fertilised ovum? I say, then, that the medical man who thinks it unworthy of him to take the steps necessary for securing his financial position allows himself to totter near most dangerous pitfalls.

I will only refer to the need of providing by insurance, investment, or otherwise, for times of professional depression, for accident, illness, and, still more, for old age. I hold that a man should endeavour to retire from practice before practice retires from him, whether, he be induced to postpone his retirement by financial necessity or by the mere love of his professional work. It is not uncommon to find elderly practitioners becoming disappointed, jealous, cantankerous, peevish, and even vituperative, who had formerly been open in manner, generous in judgment, and kindly in counsel.

A "BED CASE."

As an instance of minor temptation I may narrate the case of a woman of about 50 years of age, who for twenty years was supposed never to have left her bed, having been brought to London from a distance under the influence of chloroform on account of some convulsive nervous disorder, presumably hysteria simulating cerebro-spinal meningitis. During these twenty years she was believed to have taken no solid food, and to have subsisted entirely on brandy and water. She was, however, rather plump than otherwise, and there can be no doubt that she got up in the night and visited the kitchen larder. She was subject to well marked epileptiform attacks in which neither touching the eyeball nor tickling the nasal mucous membrane produced any reflex reaction. A very striking feature in her physiognomy was the intense blackness beneath her eyes. Her chief complaints were retention of urine and the passage of a quantity of gravel which accumulated round the urinary meatus. On account of the former trouble she was visited every second day by a medical man who passed a catheter at each visit. When the patient came under my care I had many searchings of heart as to how to deal with this strange combination of epilepsy, hysteria, and simulation, being doubtful how to steer between conscience, brutal downrightiness, possible errors of judgment, and tactful self-interest. I suggested the remarkable resemblance between the urinary sediment and the sand in the bird's cage, and as a result the "gravel" disappeared. I withheld the use of the catheter, with the result that the patient's father insisted on my returning and relieving her from the agonising pain which my omission had caused. One day, however, I found the blackness under the eyes extending down the dorsum of the nose, and by means of a wet towel I removed the blackness completely. Thus convinced of the fraud she was practising, I felt I could convict her also, and assured her that if she would get up and put on some clothes, which we borrowed from a neighbour, I would say nothing as to her deception, and simply mention it as a remarkable recovery. So distasteful to her and her family was her return to a reasonable, natural mode of life that I got no thanks for what I had effected. I was simply informed that there was apparently no need for me to see the patient again, and I know that for subsequent illness in the house another medical man was called in my stead. How easy to exercise interested credulity and continue attendance in such a case as this.

INFECTION.

Exposure to infection and to inoculation with the virus or microbes of sepsis, tubercle, syphilis, or other diseases, is so frequent that the medical man ought to be constantly on his guard, especially in the way of cleanliness and tidiness in his manipulations. He should be most cautious to avoid abrasions or other injuries to the skin of his hands, and above all he should forswear that objectionable but almost irresistible habit of holding instruments in his mouth. I am sure it has often led to specific inoculation on the lips or tonsils.

Among the dangers besetting the medical practitioner on account of the peculiar circumstances in which he is necessarily placed is that of being charged with breaches of sexual propriety. Too great caution cannot be given to safeguard oneself by all possible means. That medical scandals are so few is eminently creditable to the profession.

I pass now to more purely technical traps and pitfalls: these beset the path of the general practitioner, consultant and specialist alike.

SPECIALISM.

I have to plead guilty to being a specialist, but I regret that the term "specialism" has unfortunately acquired a somewhat evil reputation, which I venture to consider accidental, and by no means essential. The

age is one of specialism. In the most ordinary manufactures the work which is the most perfect of its kind is done by specialists. No man alone is expected to make a piano, a chair, or even a cushion, in its entirety ; for I understand that it has been found that people who can sew buttons on cushions with the greatest rapidity and neatness, and to the greatest economical advantage, are those who confine themselves to this particular speciality in the cushion manufacture. In our sports specialism is rampant ; bowling, particularly if the artist has the advantage of being left-handed, is brought to the greatest perfection by those who devote themselves to this particular branch of cricket. In sum, it would be foolish to shut our eyes to the fact that continued and concentrated attention to one particular department of work is followed by a greater facility in its comprehension and application.

The late Sir William Savory, in whom "the taint of specialism," if it may so be called, was as thoroughly wanting as it is possible for it to be, expressed himself as follows :

Now with regard to what is called specialism, let me say at once that I have no word to utter in disparagement of that form of it which consists in a man first of all studying and duly qualifying himself in the principles and practice of surgery, as a whole, and then at length devoting his attention more especially to the cultivation of some particular part of it. This is not the form of specialism against which I would protest. In my humble opinion it is in no way an unworthy one, and if it were is by no means frequent. It is no illustration of the law of division of labour as commonly understood, for excellence is not here obtained solely by exclusiveness. But the kind of specialism which should be denounced, and which it is to be feared is not very rare, is that which consists in the practice of some particular portion of surgery, without adequate attainment in or continued study of, surgery as a whole.

Sir William Gowers, who in his own department of neurology, is perhaps one of the most eminent and respected of specialists, has very properly drawn a distinction between "specialism" and "exclusivism," the latter being in reality the form of specialism to which scientific exception may justly be taken.

Where elaboration in the machinery and manipulation necessary for making accurate observations demands a special amount of mental and mechanical dexterity, it is impossible for this to be within the reach of those who are not prepared to devote an amount of time to its acquisition which the pure all-round practitioner would be unable to give ; and it would be unfair to deny to him who has devoted that time the credit for the special capabilities which this devotion has enabled him to attain. While doing this, it is, however, impossible that his acquaintance with the other departments of the remedial art should be kept up to the same standard of perfection, and indeed, unless he is ever watchful these may and must diminish ; indeed, the tendency is for his mental vision to become blurred so far as they are concerned, and he may almost be inclined to think that they do not exist because he has ceased to see them. It would indeed be an unhappy thing if sick humanity in its entirety were entrusted to specialists in whom this change had taken place ; in every case they would most probably see either some ailment pertaining to their own speciality or no ailment at all, and the possessor of a composite morbid organism would wander wildly from one to another, and would suffer much at the hands of many physicians, including surgeons and specialists of every form.

I deny, however, that this decadence need take an extreme form, for I believe that on the contrary the continued and anxious cultivation of the powers of observation and manipulation in a particular direction, as required in the practice of any semi-surgical speciality, leads to a sharpening

of these faculties to some extent in every direction. Thus the mischievous tendency to which I have referred may be considerably weakened.

THE DEBT OF GENERAL MEDICINE TO SPECIALISM.

That general medicine has benefited by the works of specialists some may be disinclined to accept, but few will venture to deny. To take as an instance the introduction of laryngoscopy : history compels me to admit that its conception did not take place in the brain of a throat specialist, for indeed in its present form it was brought before the Royal Society in 1854 by that eminent nonagenarian Manuel Garcia. He was, however, from our point of view, a specialist, though a non-medical one, for he devoted his life to the study of the production of the musical voice. Previous to this, however, there exist records of which this Society may be proud, of a demonstration before it in 1829 by Dr. Benjamin Guy Babington, of a laryngoscope closely resembling the instrument now in general use, which, when introduced through the mouth, enabled the observer to see the glottis and the movements of the vocal cords, illumination being effected by means of a hand mirror. The popularisation of the use of the laryngoscope in general medicine is, however, to be credited to the specialists, among whom we have no greater name to record in this country than that of the late Sir Morell Mackenzie. The laryngoscope is not the monopoly of specialists, but it will be readily admitted that it is to them that its wide use is chiefly due.

I need hardly remind you of the value of the laryngoscope in the detection of aneurysms and other growths in the interior of the thorax ; it is less well known that occasionally there occurs, as one of the earliest signs of locomotor ataxy, paralysis of the muscles of one or other or both vocal cords. Asthma is another disease in the treatment of which general medicine owes much to the specialist, and every practitioner in diseases of the nose must have before his mind cases in which the treatment of the nasal cavity has resulted in long and even permanent relief from the suffering depending upon this disease. Sir Felix Semon has indeed said that only a small percentage of the large number of cases of asthma which were at one time brought to him by physicians were traceable to nasal disease or relieved by nasal treatment. His experience, however, has been exceptional, for a reason not far to seek. At the time when attention was first drawn to the dependence of asthma in a certain number of cases, at least, upon nasal disease, Sir Felix Semon already had in so high a degree the confidence of physicians at large that cases of asthma were brought to him in large numbers, on the supposition that he was to find nasal disease in them all. He was naturally disappointed at the inevitable result in a considerable proportion of the cases. At the present time physicians make a rational search for nasal symptoms, and when such are present or suspected, then only are the patients brought before the notice of the rhinologist, and under such circumstances the percentage of beneficial results is by no means a contemptible one.

The study of ophthalmoscopy has in the same way contributed enormously to the power of diagnosis of the practitioner of medicine, and I need only recall how the changes in the optic disc have led to the detection of cerebral tumours, now amenable to operation ; how tubercle of the choroid may be observed, and how also the changes in the retina may indicate incipient disease of the kidney. Many cases of unexplainable failure of health and pyrexia are now rightly traced to a suppurative disease of the dental alveoli, and headaches nor otherwise amenable to treatment have been relieved by the correction of errors of refraction ; the adaptation of prismatic lenses, or the removal of hypertrophies of the middle turbinated

-results which general medicine cannot afford to despise.

THE DEBT OF SPECIALISM TO GENERAL MEDICINE.

On the other hand, the special branches have equally often benefited by advances in general medicine; thus, to take an instance from the speciality with which I am most familiar, deafness and hoarseness have been traceable to the presence of myxœdema, and to have yielded to the internal administration of thyroid gland, as they could not have done had the general condition been overlooked. Gout and rheumatism often play havoc with the middle and internal ear, and their influence in the case would be overlooked were the evidences of the cachexia not sought for. One of the most intractable forms of disease producing deafness—namely, the so-called dry or sclerotic catarrh of the middle ear—depends upon an arthritic fixation of the stapes in the fenestra ovalis, and in many instances the evidences of rheumatoid arthritis, such as grating of the shoulder, temporo-mixillary, or knee-joints, with cold sweats of the extremities, occurring in pale, delicate, young women, may indicate the nature of the affection long before the typical deformity of the joints has had time to show itself. Deafness becoming worse under local mechanical treatment of the ears is sometimes due to hysteria, whatever that mysterious disease may be, and the detection of such signs as comparative hemianæsthesia, diminution of pharyngeal reflex, increase of patellar tend on reflex, narrowing of the field of vision, may, apart from the grosser evidences of loss of voice or the typical hysterical fit, enable us to account for, and with more or less success to deal with, the condition on which the deafness depends.

The additions made to our knowledge of disease of the nervous system help the specialist materially, and I may cite the comparatively recently discovered disease of the spinal cord, syringomyelia, one of the long unknown causes of paralysis in the region of the pharynx and larynx.

A familiarity with the symptoms indicative of the menopause are essential to the specialist who would successfully deal with diseases of the throat and instances are constantly coming under our notice of disturbances of sensation in the throat, which cause the patient the greatest distress and anxiety, but are due entirely to the nervous disturbance incident to this period of life.

PHYSICAL EXAMINATION AND GENERAL OBSERVATION.

In special or consulting practice the tendency is perhaps to depend too much upon physical diagnosis, whereas in general practice the opposite is the case. No doubt the diagnosis of the disease may be approached from either standpoint, and thus, in a most valuable work on medical diagnosis, we find pneumonia classed among those diseases of the chest in which there is dullness on percussion. There are, however, many features which strike the family doctor before he has arrived at this stage in the examination, and delirium, rapid breathing, impaired oxygenation, and pyrexia may lead him to his diagnosis before he has attempted percussion or auscultation. The circumstances under which he works are more favourable to the investigation of rational rather than physical symptoms; in plain English, his patients have a great dislike to what they call being "pulled about." I remember, in being introduced to various patients by my predecessor in practice, I was urged by him to avoid examining the heart of a certain elderly gentleman in whom this feeling was very strongly developed; but, having come fresh from the hospital and keen on using the stethoscope, I felt that my duty towards the patient was not fulfilled unless I had investigated the heart. The result was as my sagacious introducer had anticipated, and the patient promptly sent for another doctor. This is an exaggerated instance, but the general principle is true, that the feelings of patients tend very strongly to discourage the use of the method of physical diagnosis on the part of general practitioners. On the other hand, I was once much galled by having omitted to make a physical

examination in a patient suffering from what were simply the symptoms of dyspepsia ; as my remedies afforded no relief, it was proposed that we should have the opinion of the late Dr. Stephen Ward ; he at once detected a well-marked carcinomatous tumour of the stomach, and when I expressed my mortifications at having overlooked it, he smiled, and said that as a young man no doubt I was keen with regard to physical diagnosis, indicating the old practitioners were much more indifferent.

It is unquestionable that far more errors have resulted from neglect of physical signs than from defective investigation of symptoms, and the acquisition of sympathetic tact in carrying out our physical examination is almost as indispensable as technical skill. The late Dr. West's work on *Diseases of Children* contains in its opening chapters one of the most instructive and inspiring lessons on this subject I have ever read.

I presume that it has fallen to the lot of all to make with me such mistakes as diagnosing lumbago instead of aneurysm of the abdominal aorta, catarrh of the uterus instead of suppuration in the Fallopian tubes, hæmorrhoids instead of epithelioma of the rectum, and, as I have said before, dyspepsia instead of carcinoma of the stomach. Many instructive lessons have been given me by physicians whom, during my time as a general practitioner, I have called into consultation.

Thus, a physician whose name was long associated with diseases of the stomach came to investigate a case which appeared to be one of chronic disease of that organ. Somewhat to my surprise, he included in his examination not merely the rectum but the uterus, and found a slight hardness of the cervix, to which at the time he did not think any great importance could be attributed, but which, nevertheless, required watching ; the advisability of his careful examination was evidenced by the fact that within a year from that time the patient died with carcinoma of that organ.

Very early in my career I had considerable trouble with a case of what appeared to be a stricture of the œsophagus ; the patient had great difficulty in swallowing, though this at times seemed to diminish ; he wasted and suffered from distension of the abdomen, without actually any ascites. The late Sir Andrew Clark came in consultation, and in his presence I was able to push a large-sized œsophageal bougie into the stomach ; he then proceeded to make a rectal examination, and thought he detected evidences of malignant disease in some portion of the intestine external to the rectum. My fear was that there was a stricture of the œsophagus, and that it was cancerous ; there was a stricture, and no doubt there was cancer, but the stricture of the œsophagus was spasmodic, and the cancer was in one of the abdominal organs. I remember a case presenting the symptoms of cancerous stricture of the œsophagus, which seemed a favourable one for gastrostomy, but Mr. Mayo Collier, on examining the abdomen, found evidence of carcinoma of the liver, and was able to pass a bougie down the œsophagus, the case being in fact, practically identical with the one above described.

These two cases indicate the importance of examining under an anæsthetic before pronouncing any obstruction in the œsophagus to be impermeable. Dr. Stephen Mackenzie has published several cases of this reflex spasm of the œsophagus associated with disease of the abdominal organs.

The following is an illustrative instance of a spasmodic affection simulating organic disease. An elderly medical man, complaining of pain and difficulty in swallowing, came to me in great anxiety, thinking he was the subject of cancer of the œsophagus. Having been formerly inoculated with syphilis, he had been treated by another surgeon for that disease, and the absence of benefit confirmed him in his opinion that his obstruction was malignant. Observing, however, that he was almost edentulous, and

knowing that the swallowing of imperfectly masticated food may occasion the most extreme spasm of the larynx and œsophagus, I urged him to apply to the dentist for artificial teeth. In a fortnight he returned smiling with a complete set of masticators, and assured me that every troublesome symptom had disappeared.

I have experienced difficulty in the diagnosis between alcoholism and commencing phthisis, especially in women; the prodromal rashes in the various fevers also are very apt to mislead, as, for instance, the scarlatiniform rash preceding the eruption of small-pox. Effusion into the labyrinth is constantly mistaken for a bilious attack, and I am informed by ophthalmologists that the same is true of glaucoma.

I regret to say that I have mistaken renal dyspnoea for asthma, only discovering when too late for my remedies to be of avail the real cause of suffering and danger.

Apical pneumonia may puzzle the most wary, and I remember a case which commenced like typhoid, the subsequent localisation of physical signs in the apex of the lung suggesting tuberculosis until the crisis rendered the diagnosis obvious to myself and to the consulting physician whom I had by this time called to my aid.

CONSULTING AND GENERAL PRACTICE.

This particular instance reminds me that the consultant has often a very great advantage over the family practitioner. Apart from the more leisurely and important nature of his investigation, there has often been time in the interval between his being summoned and his arriving for changes to take place which render the diagnosis easy; as, for instance, the sneezing or rash of measles explaining at once the convulsions which had been puzzling the family practitioner, the crisis in pneumonia, the discharge in suppurative inflammation of the middle ear. I was formerly very much struck by the ease with which I seemed to arrive at the diagnosis in cases of obscure disease in which my neighbours did me the honour of calling me in consultation, as contrasted with the difficulties I had in analysing my own cases. I came to the conclusion that a man called into consultation with his mind screwed up to the pitch of concentration in a particular case, seeing it for the first time when its features were fairly developed, was in a much more favourable position for diagnosing it than he who had watched its gradual development from the outset, when its seriousness was not yet pronounced. There is need, then, for the charitable—I may say honourable—consideration on the part of the consultant towards the practitioner placed at such a comparative disadvantage. On the other hand, the ablest consultant is sometimes called in for a single examination of a case at a time when its nature is too obscure to allow of an absolute diagnosis; the family practitioner may at a later date witness the changes which may reveal its character, and form an unfair opinion as to the judgment of his colleague.

THE VALUE OF DRUGS.

The general practitioner has been charged with over-enthusiasm with regard to the value of drugs; the consultant, on the other hand, is credited with an equal tendency to scepticism. Either attitude is to be deplored, and I am convinced that the former is less regrettable than the latter. I postulate, however, the careful study of pharmacology with which the spirit of scepticism is absolutely incompatible. Making all allowances for individual idiosyncrasies, admitting further that much drugging that is practised is valuable on account of the "suggestion" which it conveys, I am convinced that the relief afforded to sufferers by practitioners who believe in drugs is far too great for any theoretical uncertainty as to the mode of action, to justify that relegation of them to the realms of all things vain, which some superior persons seem to countenance. Scepticism diminishes

and even disappears when the due selection of drugs is carefully studied. That too much is expected of them by many practitioners is undeniable, and in point of fact it is very easy to become over-enthusiastic about any particular drug or method of treatment, as the history of such drugs as aconite, phosphorus, and arsenic amply show.

VENESECTION.

Venesection is a method of treatment which has suffered both from neglect and from over-estimation. On one occasion I was attending a little girl through an attack of scarlet fever ending in acute nephritis, uræmic convulsions, and coma. I proposed venesection, and met with protests and the suggestion that a more experienced neighbour should be called into consultation. The result of the consultation was the advice on my friend's part that I should leave the venesection alone: that the child was going to die, and that if I did the operation the death would be attributed to it. In spite of this, the parents being convinced that nothing could save the child, I got permission to do as I wished. The heart beats, which had become almost imperceptible, became steadily stronger as the blood flowed from the vein; the patient recovered, and was alive and hearty many years afterwards. In a case of congestion of the lungs with distended veins following immersion and reanimation by means of artificial respiration, unconsciousness was rapidly developing. I practised venesection, consciousness returned, and a rapid recovery took place without the occurrence of pneumonia. The next and I believe the last occasion on which I performed venesection was soon after the last mentioned, when a patient suffering from dyspnoea, rapid breathing, and cough seemed to me to be likely to be benefited by withdrawal of blood. The case, however, turned out to be one of pulmonary tuberculosis, and the result of the loss of blood was to promote euthanasia at an earlier period than otherwise would have taken place. Regrettable as was the result in the last instance, I can recall no more brilliant recoveries from impending death than the two previous ones; and what I have said of venesection is, I am sure, true of many other of our remedial agents, if we had the determination to employ them judiciously.

PITFALLS IN GENERAL PRACTICE.

In looking back on the ten years of busy general practice which extended from 1877 to 1888 I almost shudder to think of the pitfalls which by luck I escaped. What became of the cases of appendicitis which ought to have occurred and died? Why had I no deaths due to extrauterine foetation? May I say, with Dr. Johnson, that it was simple ignorance? I do not think so. I never had occasion to break up the foetal head, and though I am not aware what the experience of others may be, I believe that by the timely practice of turning, followed by the application of forceps to the after-coming head, I have succeeded in delivering in what would otherwise have been cases of craniotomy.

In my intercourse as a general practitioner with consultants I was often favourably impressed by those who, as physicians, strove to guard themselves from falling into surgical errors, and those who, as surgeons, gave due attention to the medical aspects of the case. In this way alone, it seemed to me, was the chance of error reduced to a minimum. I hold that while the general practitioner should emulate the exactness of the consultant, the latter should at the same time try to look at the case from the point of view of the general practitioner. The former may be a scientist or artist in his particular line, but the latter is the typical healer of the sick, whose livelihood depends upon his affording cure, relief, or consolation, an ideal which should be foremost in the mind of whoever would succeed in the practice of the healing art.

In the light of what I have just said, you will, I am sure, agree with me

that the traps into which both general and special practitioners are likely to fall are many and various—the former for want of “special” knowledge, and the latter, for want of general regard to medical consideration. I shall quote in particular specially those cases which have come under my own observation; and I shall in the first instance narrate a few instances of errors into which practitioners of general medicine might readily fall for want of special knowledge.

The following is a concrete example: A young woman with many signs of phthisis—cough, expectoration, disturbance of digestion, loss of appetite, and general wasting—was sent to Bournemouth for treatment of her supposed pulmonary tuberculosis. My friend Dr. Davison was unable to detect the physical signs in the chest required to complete the diagnosis, but he discovered a purulent nasal discharge associated with the presence of multiple polypi of small size. He directed the patient to return to London and place herself under my care. I was able to restore the nose to a reasonably normal condition, with the result that all the phthisical symptoms disappeared, and Dr. Davison's opinion was absolutely confirmed. Similar cases have been observed in which the primary disease was suppuration in one or more of the sinuses of the nose, producing the quasi-phthisical condition to which French writers have given the name of “*pseudophymie*.”

Nothing is more terrifying to specialists in laryngology than the comparative indifference with which a persistent hoarseness is viewed by many general practitioners, the specialists well knowing that this is often the only symptom present at the early and tractable stage of epithelioma of the vocal cords. The practitioner is too apt to be biassed by the absence of pain and of the “cancerous cachexia,” a fetish to which too many lives have been sacrificed. How often, too, has an aneurysm of the aorta been overlooked, when an examination with the laryngoscope would have rendered the diagnosis plain.

PITFALLS IN SPECIAL PRACTICE.

There are, however, traps of the most insidious description into which specialists are apt to fall, either from want of general knowledge or from the self-sufficient disregard for general medical consideration. I may quote a case of dryness of the throat, such as a specialist is very apt to attribute to nasal obstruction, and in which on the first visit I entirely overlooked the real cause; whereas on the second one I luckily made an examination of the urine, and found ample evidence of diabetes mellitus. Habitual epistaxis, again, is in most instances to be treated by a localised cauterisation of the so-called “seat of election” on the antero-inferior portion of the nasal septum, but the specialist who fails to examine the urine for albumen is sure to be led into error at some time or another.

Perhaps the most dangerous trap of all is in relation to the question of hæmoptysis. There is no doubt that cases have occurred in which the hæmoptysis has arisen from rupture of a small vein in the pharynx, or it may be at the root of the tongue, and the knowledge of these few cases has too often raised hope (“immortal in the human breast”) that a visit to the throat specialist might result in the discovery of some such comparatively trivial cause for the dreaded symptom. I as well as others have fallen into this trap, and have had the mortification of seeing a patient return with unmistakable evidences of phthisis for whose hæmoptysis I had too cleverly cauterised some suspicious venules. I am quite convinced that the very last thing one ought to expect to find as a cause of hæmoptysis is such a local hæmorrhage as I have mentioned. It is most exceptional for this to arise from any other cause than incipient pulmonary tuberculosis. A medical friend brought his son to me on account of hæmoptysis, full of hope that I should find a cause for it in the upper part of the throat.

With great distrust I carefully examined the throat and discovered nothing accountable for the bleeding, but on examination of the chest I was able to find, as I expected, sufficient evidence of tuberculous disease of the right apex to lead me to refer my friend to a physician more skilled in diseases of the chest than myself. On another occasion a medical friend brought a cousin who had had a distinct hæmoptysis some two days before; history again repeated itself. The throat revealed no lesion but I heard unmistakable crepitation at the right apex. I advised an examination of the morning sputum and a consultation with a more skilled physician. Two days later the crepitations had entirely disappeared, and the physician found absolutely no signs of disease of the lung, but the sputum contained bacilli, and the patient has since had two breakdowns, requiring repeated sojourns at Davos Platz. I may say in passing that mistakes sometimes result from omission to auscultate behind (over the apex of the inferior lobe) as well as in front.

Another trap was a case of considerable interest. A gentleman of advanced middle-age had returned from India, and was advised to consult me on account of what was supposed to be tuberculosis of the larynx, the most marked symptoms being cough, hoarseness, and wasting. On laryngoscopic examination there was a slight congestion of the vocal cords, but absolutely nothing characteristic of laryngeal phthisis. The patient was indeed considerably emaciated, but there was a yellowish tinge of the conjunctivæ which suggested hepatic trouble. On inquiry I elicited that he was subject to shivering attacks every afternoon, and I ventured to make a diagnosis of tropical abscess of the liver, a diagnosis which was subsequently confirmed.

I may quote a case to illustrate the subject of myxœdema to which I have already referred—namely, that of a middle-aged woman who was sent from the Midlands to consult me some years ago on account of deafness. Her voice was somewhat monotonous, and there was just sufficient characteristic peculiarity in the physiognomy to enable one who was familiar with myxœdema to recognise it. I therefore wrote to her medical attendant advising that the patient should consume thyroid glands of sheep. Within three days I received a telegram to say that the patient was apparently dying, hardly breathing, with the pulse so soft and quick that it could not be counted. In the interval I had made myself acquainted with information concerning the physiological action of thyroid glands, and telegraphed at once instructions to stop the thyroid glands and to administer digitalis and ammonia. A letter arrived to say that although the patient had been so seriously ill the hearing had quite recovered, and at the present time, thanks to the more discreet ingestion of the thyroid gland, she is in the best of health.

Some considerations with regard to enlargement of the thyroid gland ought to be at the disposal of those who treat diseases of the throat, and I have been saved from error by the recollection of certain cases observed during my period of practice in the East End of London, at the time when it was more customary for the wives and families of seafaring men, to live there, before the railway afforded the present facilities for residing at a greater distance from the docks. In several instances under my observation the wives of sailors came to me on account of enlargement of the thyroid gland, which diminished under the internal administration of these valuable sexual sedatives, potassium bromide and camphor, and disappeared entirely soon after the return of the husband. Recently a married lady of robust full-blooded type was brought to me on account of an enlargement of the thyroid gland. I was able on close inquiry to elicit that, from motives of economy, in spite of strong mutual attachment, marital relations

had for a considerable time been allowed to lapse completely, and the origin of the thyroid enlargement was thus explained.

This illustration of the bearing of general medical observation on special practice reminds me of a form of deafness which merits your attention. Mr. Jonathan Hutchinson has described the amblyopia of young husbands, and I have in several cases observed the analogous occurrence of a marked degree of nerve deafness in men similar circumstances. Excess for the individual in solitary indulgence is a frequent cause of nerve deafness in males, as direct interrogation and the results of reform clearly prove. In the female the same cause no doubt constantly prevails, but I am not aware of any means of detecting the existence of the injurious habits which is not open to objection.

A curious instance of a trap for the specialist was the case of a male child of about 10 months old, brought to me on account of attacks of suffocation attributed to some obstruction in the throat. On inquiry, I elicited that the attacks were characterised by evidences of intense nervous excitement, culminating in a climax followed by intense depression approaching collapse. This closely answered to the description of the orgasm given in Braun's work on diseases of children, under the heading of infantile masturbation, that I ventured to diagnose it as such, the father confirming my opinion by the observation that during the attacks there was obvious priapism. I found an elongated and tight prepuce, and recommended circumcision with, as I afterwards heard, the most satisfactory result.

SPECIALISM AND MEDICAL EDUCATION.

It has been proposed to include examination in the so-called special subjects among the requirements for medical qualification. There can be no doubt as to the correctness of this position, as I think some of the incidents which I have narrated amply prove. This will not however, make every legally-qualified practitioner a specialist in one or every subject, but it will do for the public more than the creation of any number of specialists, if it raises the standard of medical education all round. The bane of specialism is self-sufficiency, and the general practitioner also is sometimes not altogether free from this defect; but with increased education in the direction that I have just indicated he will exercise a wholesome check upon the specialist, who will find that he is no longer dealing with an ignorant person to whom he may lay down the law at his own sweet will, but with a well-equipped colleague who, if he is not so accurately informed in regard to the one special portion of the human organisation, is as well, or probably better, acquainted with its general workings, and able to take a wider grasp of the situation than the pure specialist may be able to do. I am confident that humanity has suffered from the arrogation of special knowledge of a limited department of medical science, on the assumption that the general practitioner is proportionately ignorant. With increased education on the part of general practitioners, and more active competition among specialists, this evil has been minimised, and to a great extent eradicated; that it may be completely so is a consummation devoutly to be desired, both for the sake of sufferers, the credit of the profession, and the self-respect of all practitioners, both general and special.

Gentlemen, if I have seemed to give instances in which I have escaped falling into traps, I have given them because I feel that my escape was a very narrow one, and I trust the cases are illustrative and instructive. Were I to give you a detailed list of the traps into which I know I have fallen, I should occupy a much longer space of time than I am justified in doing, and I doubt not that for every trap I have escaped I have fallen

into a dozen. I can only hope that those who have suffered by my ignorance may not bear too large a proportion, compared with those who have benefited by my experience of the traps and pitfalls into which I have fallen, as well as those from which I have only by luck escaped. Until the human knowledge approximates to the Divine we must expect to make mistakes. If the specialist keeps his mind open for the instruction which he may derive from the general practitioner, the list of mistakes will be all the fewer, and those which are committed all the more excusable.—*Brit. Med. Journ.*, April 27, 1901.

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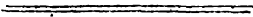
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THE DIAGNOSIS OF PLAGUE.

THAT THERE IS CONSIDERABLE DIFFICULTY in the diagnosis of Plague, is admitted even by experts, clinical and bacteriological. It is true that the difficulty is very great when we have to deal with single or first cases, "where either the etiological data are not satisfactory, or where the clinical history and symptoms are not distinct and not typical." But it is not true that the difficulty is almost nil during an epidemic when the clinical and pathological features of the disease are strongly pronounced. From our experience in Calcutta we are led to conclude that the difficulty of diagnosis during an epidemic is not less than in the first and last cases of an epidemic. It is during an epidemic that there is greater tendency to mistake the graver forms of ordinary diseases for plague. It is a fact which must be in the cognizance of practitioners of long experience that cases of pernicious malarious fever may prove fatal sometimes within twenty-four hours, and not unoften within two or three days. And there are cases of cholera which with very little of the symptoms of the typical disease end fatally within a few hours. Such cases, we know, have been mistaken for cases of plague and set down as such in the returns furnished to the municipality. This has been due not always to the over zeal of officers to swell the returns but many a time to a true conviction on their part. During an epidemic of plague there is a tendency on the part of both professional and lay men to see the spectre of plague in every case of disease where there is unusual prostration with some aberration of the mind.

When such is admittedly the fact, is there any positive means of arriving at a correct diagnosis in cases where the disease does not present typical symptoms and pathological developments and unmistakable etiological relationships? Much is expected from Bacteriology in this direction. And truly the discoveries of Kitasato and of Yersin have contributed immensely to the diagnosis of Plague. But we cannot say yet that the bacteriology of the disease has been as thoroughly investigated as it should have been. There is still dispute as to whether there is one specific bacillus, or more; though there seems to be a consensus of opinion as to the one form most frequently found. We take the following description of that form from Dr. Klein's Paper recently read before the Epidemiological Society of London:

"The bacillus *pestis* is straight, thick, with blunt edges taking stain more deeply than the middle; it does not liquefy gelatine, but forms colonies of characteristic appearance. In ghee broth the culture forms a layer on the surface, which sends stalactitic prolongations downwards, and on the least agitation falls to the bottom like a snow shower. The bacilli secrete a viscid material, which causes them to adhere in clumps, precluding emulsification, and simulating agglutination. It is, however, soluble in salt, and gelatine cultures can be emulsified in the physiological solution in which the serum of animals suffering or having suffered from plague causes unequivocal agglutination within five to fifteen minutes when added in the proportion of 1 to 20." Dr. Klein further said that "he has prepared a number of guinea-pigs by successive injections of sterilised salt emulsions and mild living cultures, with whose serum he has produced almost instant agglutination of bacilli in cultures obtained from all parts of the world, and has availed himself of the phenomena in testing the efficacy of samples of Hoffmann's antisept solution."

It will be seen that Dr. Klein's own investigations have advanced the bacteriology of plague much further than what he found in 1896 when he published the last revised edition of his *Micro-Organisms and Disease*. But much yet remains to be done. It has to be decided whether there is one or more forms of the bacillus *pestis*, whether there is any difference of form and pathogenic virulence according to the variety of the disease, and according to the species of animals in which they flourish. And it has further to be decided what the conditions are which affect the virulence of these microbes. For instance it is generally believed that desiccation, aeration, and the sun destroy that virulence, but facts have come to light which throw considerable doubt on this supposition.

But even when all this is done, bacteriological diagnosis will not be fully reliable in every case. Dr. Klein has related the case of a boy that had recently occurred in one of the London

Hospitals and which supports the view we have taken: "This much is certain," says Dr. Klein, "that the boy suffered from an illness the symptoms of which to a large degree were compatible with true plague; that etiologically no satisfactory evidence was forthcoming to elucidate the disease. The bacterioscopic evidence, which in certain respects supported the diagnosis of plague, in another essential respect—animal experiment—negatived it: and I would particularly draw attention to the total absence of any microbes in the pus of the suppurating bubo of the boy in the later stages of his disease, and to the total absence of agglutinating action of his blood in the convalescent stage."

Then again when we are told that, in the bubonic form, plague bacilli are rare in the blood, and that they are practically limited to the spleen and lymphatic glands, from which only after the acute stage is passed, plague bacilli are available, it will be seen of what little practical value the bacteriological diagnosis of plague must be in this easily recognized variety of the disease. The difficulty, according to Dr. Klein, is less in the case of the pneumonic and septicæmic type, a high degree of infectivity of which "is in complete accordance with the bacteriological facts and with the wide distribution of the plague bacilli in, and the copious discharge from, the body of the patient. In the pneumonic type, the exudation of the inflamed lung and the expectoration teems with the plague bacilli; in the septicæmic or hæmorrhagic form the blood contains an abundance of the bacilli, hæmorrhages occur in the membranes of the alimentary, respiratory, and urinary organs, and therefore the voiding of plague bacilli is extremely great and their diffusion easy." From all this it will be seen that there is this one serious drawback of the bacteriological method, and that is, that it takes too long a time to be of use for therapeutic purposes, though it is certainly helpful in the drawing up of correct statistics.

The ultimate appeal for diagnosis of plague must, therefore, rest with the clinical expert. The physician must bring to bear on each case deep and extensive knowledge of disease both theoretical and practical. He must be not only familiar with the forms and seasonal and yearly succession of diseases in the immediate centre of his activity, but he must be wide awake as to what new and unusual diseases are occurring in other parts of the world, so that he may look for the probable times of their importation into his own country, and thus be enabled to closely watch the first cases of such diseases that may come in his way, and apply to them all the known methods of diagnosis. When this is done we shall have very little cause for dispute about the real nature of any cases of disease.

MUNICIPAL REPORT OF PLAGUE IN CALCUTTA, ' WITH REFERENCE TO CONTAGION AND INFECTION.

By DR. HEM CHANDRA RAY CHAUDHURI, L.M.S.

Mr. W. R. Bright, the immediate predecessor of Mr. R. T. Greer, the Chairman of the Corporation, submitted a "Report of the Epidemics of Plague in Calcutta, during the years 1898-99, 1899-1900, and up to 30th June, 1900-1901." The report contains appendices by Dr. J. Nield Cook, D.P.H., the Health Officer, and by Major C. R. M. Green, I.M.S., F.R.C.S., D.P.H., and Major H. E. Deane, R.A.M.C., the Special Health Officers of the period.

Mr. Bright says:—"Early in April (1898) mortality was reported amongst rats, and on the 17th April the first case of plague was reported, though there is reason to believe that some cases had occurred previously. Up to the end of that month 41 cases were reported. Calcutta was then declared to be infected, and the number of cases reported dropped. Only 32 were reported in May, 77 in June, and 22 up to the 22nd July when Dr. Cook gave over charge to Major Bannerman. The number of cases reported afterwards was small, and on 10th October, the city was declared free of plague. The epidemic indeed was very slight, the total number of attacks reported being 230 and deaths 192. The wards principally affected were 5, 7, 8, 9 and 13." In a report published by the Government of Bengal, the first case appears on the 16th April, 1898, Saturday, at 29 Kapalitola Lane. It bears the remark that "this statement does not include the two cases reported by the Sanitary Commissioner on the 14th April 1898." On the 17th April, Sunday, two other cases were reported from that lane.

I may mention that rumour of plague in Calcutta was current from the month of October 1896. Nine cases were reported, and they appear in "The Plague in India 1896, 1897," compiled by Mr. R. Nathan under the patronage of the Government of India. The case of Bepin Behary Dutt of Raja Raj Bullub Street was seen by Drs. Cobb and Simpson on the 3rd November 1896, who took blood from the bubo of the patient. In a report on the 7th February 1897, Dr. D. D. Cunningham, the bacteriologist to the Government of India, established the non-existence of plague bacillus in that case. Dr. W. J. Simpson, the then health officer, is still under the impression that that was a genuine case of plague. Dr. Mahendra Lal Sircar and myself collected the clinical facts which verified the statement of Dr. Cunningham. My report appeared in the *Reis and Rayyet* of the 21st November 1896.

Mr. Bright mentions that 41 cases of attack occurred in April, 32 in May, and 77 in June. The figures furnished by the Govern-

ment of Bengal are 37 in April, 33 in May and 77 in June. This discloses a disagreement between these figures. The number up to the 22nd July is stated to be 22, whereas in the Bengal figures it is 44. The total number of attacks up to September in the two reports agree. It is 230. Plague was first declared in Calcutta on the 30th April 1898. On the 1st October the city was notified free, and on the 24th February 1899, the Government of Bengal again announced that it was infected. Mr. Bright mentions the number of attacks during March 1899, to be 464, but according to Government it was 521. He makes this significant statement—"In March there was a rapid rise in both general and plague mortality, and while the reported plague mortality from that date to the 1st April amounted to 464 only, the total mortality exceeded the normal by 640, although the number of deaths reported from cholera and small-pox were 627 below the quinquennial average. Major Green therefore believes that the total plague mortality during that period was 1,267 as against 464 reported. It is quite possible that he may be right as there has been a marked disinclination to record deaths as produced by fever, as this is thought to have a suspicious affinity to plague while cholera and small-pox have no such similarity." Since the advent of plague types of fever have generally changed and show high temperatures with bad symptoms. If all the bad cases of fever are denominated plague, then its number will doubly or trebly increase beyond the reported cases. It is not unfrequent to mistake cholera for plague by the over zealous plague officers. Cases are not unknown in which the attack could not be verified. In the Plague Case List of 11th March 1899, it appears one Bathoo, a Mahomedan died on the 11th March, in 22 Jeliapara Lane, Ward 11. It is well known that no Mahomedan ever resided in the house or in that lane. Notwithstanding my protest nothing has been done to correct the error.

Making allowances for increase from over zeal on the one hand and reduction from motives of concealment on the other, we may say, that the figures may be taken as approximately correct. Mr. Bright's report shows that a few of the most insanitary houses which were mostly affected could not be improved for want of fund. The occupiers could not be segregated for fear of spreading infection. The theory and practice are against such assumption. Segregation in cholera has proved amply beneficial.

Dr. Nield Cook's report begins with an examination of the previous history of plague in Calcutta. Beyond the unusual mortality due perhaps to malarious fever and cholera, there is nothing to show that there was plague, though Dr. Simpson implicitly believes that there was.

Dr. Cook has given the historical first case of Issur Chunder

Dey in Kapalitola Lane. The *post mortem* and bacteriological examinations verified that it was a case of plague. The corroboration from M. Haffkine supported them. The poison from the body of Issur Chunder Dey proved fatal to one Budri Dome who received an wound during the *post mortem* examination.

The spread of the disease from Kenderdine's Lane to Market Street is said to have been due to one Champa, a native Christian woman, though the number of the premises in which Champa lived in Market Street has not been given. It is believed that Champa infected one Kamini who lived in 13 Market Street. Such doubtful inferences are often noticed in the reports.

Dr. W. B. Bannerman's report is republished from the *Indian Medical Gazette* of the 9th September 1898. In 14 Roopchand Roy's Street eight deaths happened in a fortnight. Just after, on the 11th August, seven cases were reported from 5 Municipal Office Street. It is not said whether the affected persons of 5 Municipal Office Street resided at 14 Roop Chand Roy's Street or used to go there. They often went to Roopchand Roy's Street but in which house it has not been mentioned. All houses in Roop Chand Roy's Street were not affected. Of the attacked, in four cases bacteriological examination was undertaken. In three stalactite growth was observed. The failure in one case is said to be due to the following reason :—

"It is somewhat curious that the one case, in which we failed to separate the bacillus was the only bubonic case. This may have been due to our missing the gland in the large boggy bubo similar to the one mentioned at page 71 of General Gatacre's report, in which though plague bacilli were found by the German Commission on three occasions during life, yet none could be detected by them at the *post mortem* examination. There can be very little if any doubt, however, that she died of true plague considering that she came from Roop Chand Roy's Street and died of an acute fever with axillary bubo."

Several *post mortem* and bacteriological examinations were performed by Dr. Green.

An interesting examination of a rat has been given by Dr. Clemow. Apart from the internal signs, the external had an important signification. It is as follows :—"The animal was evidently recently dead; there was no smell of decomposition and *rigor mortis* had not passed off. It had been found lying on a path in the garden; it lay prone on its abdomen, with four legs extended, while the usual position in which dead rats are found is quite different, the animal lying on its side and all the limbs fixed."

Out of 865 cases, Dr. Green has observed the following

numbers of the different varieties of the disease, and of buboes with respect to their position :—

Parotid...	...	...	70
Submaxillary	...	...	9
Cervical..	...	...	38
Axillary	...	...	125
Inguinal and Femoral	...	...	456
Multiple glands	...	...	19
Pneumonic	...	...	116
Septic	...	...	32

Total ... 865

According to his experience pneumonic cases far exceed those recorded by other observers.

Dr. Deane attaches undue importance to the enquiries made by his medical inspectors. From what I have seen of their enquiries, I have been led to conclude that they do not carry on their duty properly, that is, with a view to find out the actual state of the case, but with a bias and eagerness to represent any case as plague and thus enhance the number of cases, on which perhaps, their service depends.

Difficulty exists in eliciting a true history. A medical man who knows his business can often do so easily. Perhaps it will not be too much to say that such training cannot be expected from Hospital Assistants. As far as patients are concerned, many medical practitioners will side with me in the statement that enquiries concerning lunacy, moral delinquency or alcoholism are not so difficult as Dr. Deane believes. Dr. Deane is misinformed that in all cases an enquiry is made from the attending physician. My experience, as Secretary to the Vigilance Committee of Ward 11, forbids me to substantiate his statement. Enquiry from the medical attendant is rather an exception than the rule. I cite only one instance among many. In the Plague Case List of the 25th February it appears that one Charu Chunder Mukerji of 38 Sankaritola Lane died on the 24th. The father of the boy is a qualified medical practitioner. His son died of tetanus caused by a wound. Mr. James, the then Commissioner of Police, was so far satisfied that he allowed the cremation of the body without a *post mortem* examination. These facts could have been easily collected had a proper enquiry been made.

Dr. Deane may remain satisfied with his programme of enquiry, but we are not. He should know that many misrepresentations are made by his subordinates. It cannot be said that medical practitioners in general do not understand even now what plague is. Qualified medical men do not feel any difficulty in arriving

at a right conclusion. There are many unqualified practitioners and their number is more than that of the qualified. Dr. Deane cannot expect that they will be able to understand the differential diagnosis of plague with other fevers. It is the fault of the Government that they are allowed to practice the European methods of treatment. Allowing the Kabiraji and Yunani methods to remain in vogue with due restriction, the quacks who practise allopathy or homœopathy can be restrained from doing so at least in Calcutta, the jurisdiction of the Corporation.

There is disinclination of a large number of medical attendants to inform the Special Health Officer of a case of plague for fear of losing their practice. The difficulty can be obviated by strictly enforcing the sections in the Municipal Act relating to the supply of such information. Those, who act in obedience to the law, fall into the bad graces of their constituents, while those, who do not, find favor with them.

It is an admitted fact that there are difficulties in tracing plague. Such difficulties will remain and perhaps will never disappear. Instead of an everlasting complaint, it will be convenient to find out means to perform the work more easily than before.

In support of disinfection it is assumed that fresh occurrence ceased after that operation. On the other hand it is generally observed that after the attack of a case or two, the outbreak ceases of itself without disinfection. This fact has been observed in unnoticed cases, that is, in those which were not included in the Plague Case List. In rare instances more than two attacks are observed from plague. Without taking any ambitious view of disinfection, it can be said that disinfection as it is performed does not satisfy any keen observer. A mixture of bichloride of mercury and hydrochloric acid may be potent to destroy the bacilli which remain in the walls or floor of the room which is disinfected, that is, in which the patient died. The fear of loss of furniture and other appurtenances generally leads the members of the bereaved family to show often a room or a veranda which will not entail any loss if disinfected. I know of many instances in which such misapplication of disinfection has been done without any fresh attack. General cleanliness added to disinfection in whole houses or bustees will really enhance the value of disinfection. The disinfection of large bustees is no doubt a very difficult matter. I think that if Mr. Greer remain for a long time as Chairman of the Corporation, Dr. Deane's complaint of the bustees will cease. We soon expect to find the city full of masonry buildings and all trace of huts will disappear. Bustees then will be a matter of historical interest only.

Dr. Deane writes :—" Though, for ordinary purposes, the term infection may be taken to include contagion, in considering plague the technical demarcation between the two must be observed. An important question of preventive treatment is concerned with the distinction, a forgetfulness of which has been fraught in this country with far-reaching disastrous consequences.

" Contagion, in its limited sense, means the direct transmission of a disease from one affected to a healthy person, and in no other way can the latter contract the disease. This contagion may take place in two ways : first, by inoculation, as in the venereal diseases ; secondly, by the close proximity of a healthy to a diseased person. For instance, a child enters the room in which a patient is sick with measles or scarlet fever, and develops the disease after the usual period. The disease is contracted by direct contact with the patient or the air immediately surrounding him.

" Infection means indirect contact with the poison, through some medium other than the diseased human body ; it may be the air, food, water, clothes, dust, or anything. There are certain contagious diseases which are not infectious ; e.g., the venereal diseases. The poison has no existence apart from the human body, and can only gain access to a healthy person by direct inoculation from one so diseased."

Sir J. Simon, in Quain's Dictionary of Medicine, says :—" The RATIONALE of the word 'contagion' as now used, is that the property is understood to attach itself essentially to a material contact ; not necessarily that, when infection is spread from individual to individual, the contact of the individuals must have been *immediate* ; but that in all cases there must have been such passage of material from the one to the other, as was in itself at least a *mediate contact* between them. And similarly, in those very instructive illustrations of the process of contagion which are furnished within the limits of a single diseased body by the propagations of disease from part to part of it, we can in general easily see that infection advances from part to part, either in proportion as part touches part, or in proportion as the one receives from the other the outflow of lymph or blood or secretion." He further says :—" Diseases, which are known to be capable of transmission from one animal to another of a different class, or from one individual to another of the same species are said *infectious* and to be conveyed by *infection*. These words are, however, often employed in a more definite and limited sense, as signifying the transmission of affections of this kind without the necessity of any direct contact between the individuals, or of any obvious application of the morbid agent to the body, or its immediate introduction into the system, this agent being con-

veyed through the atmosphere, and taken in mainly during the act of respiration. This limited meaning is employed in contradistinction to *contagion* and *contagious*—which then imply direct contact, and to *inoculation*; in this sense some affections being regarded as infectious but not contagious or inoculable, and *vice-versâ*. The word infection is sometimes used as synonymous with the *contagium* or agent by which a communicable disease is conveyed. An important application of the term *infective* relates to the effects resulting from certain morbid products, such as tubercle, pus, septic materials, etc., which when introduced into the system by inoculation or in other ways, produce corresponding definite changes by an infective process, manifested by tuberculosis, pyæmia or septicæmia." Now the tendency of many authorities is not to make any difference between contagion and infection, though the old distinction is through immediate or mediate contact. By the advance of the knowledge of bacteriology no particular demarcation between the two can be made. With our ignorance of the specific morbid material, that is, the micro-organism in some cases, and their mode of entrance into the human body, it is expected that speculation should be rife.

Writing of plague Dr. Deane has not discussed the applicability of those distinctions as regards the entrance into the human system of the diplococci. Why some cases are manifested as bubonic while others pneumonic, septicæmic or gastro-intestinal while the cause of affection, that is the bacillus remains the same; and again, why most of the bubonic cases manifest themselves in producing femoral and inguinal buboes in preference to the other varieties of the bubonic form, must remain subjects of future investigation.

It may be said that infection and contagion are different stages of the morbid material with regard to its virulence. Contagion may be considered to be a less virulent stage than infection. Indirect transmission means that bacilli may remain in a medium for a time and still retain its virulence. In contagion the pathogenetic power of the bacilli is not sufficiently great to enable them to exert their infective influence through a medium. According to this view all infectious diseases are contagious but all contagious diseases are not infectious.

Dr. Deane again says:—"Now, all infectious diseases are not directly contagious, as examples of which typhoid fever and cholera may be cited. An example of mixed contagious and infectious properties exists in anthrax which is directly communicated from diseased animals to man, but not directly so, as a rule, from one animal to others. One animal deposits the poison on a field when feeding, and other animals contract the disease indirectly in that way."

On the basis of natural immunity by the phagocytosis of the white corpuscles, it can be said that any morbid material or micro-organism can affect the higher animals including man when that natural immunity is destroyed. The imbibition of any poison in the system can be through a wound or sore, or food or drink, or through air inspired by the lungs. The chance of communication through unabraded skin is so far distant that we can leave it out of consideration. Local manifestations such as lupus, carbuncles, ecthyma and other skin diseases can be produced by imbibition of a poison through the skin and thereby the whole system may be affected.

It has been generally observed that bubonic cases appear without the entrance of the poison through any sore or wound. The natural conclusion is that it enters through our food or drink. The chance of the lungs transmitting the poison without themselves being affected is also far distant. It can be assumed that the plague bacilli generally affect the health through the medium of food or drink. Pneumonic plague is manifested by the imbibition of the bacilli through air. Excepting the introduction of the poison through a wound or sore, it can be said that plague attacks are mostly infectious. The only contagion is through a sore or wound. The infection is the chief way by which the human system can become affected. It has been noted by the Bombay Plague commission of 1897 that plague bacilli enter our body from the nails coming in contact with diseased persons and then being communicated through food.

Further, the fine distinction between contagion and infection vanishes if we leave out that form of direct absorption. It has not been experimentally established whether typhoid fever and cholera bacilli can be absorbed through a wound or sore. They can do their mischief when conveyed through food. Direct absorption of any poison or bacillus through a wound or sore is possible.

The possibility of the infection being carried through the digestive tract cannot be denied. Notwithstanding the experiments of Batzaroff, Wysskowitz, Simmond, Koch, Lawson, etc., to the contrary, other experimenters, Baudi, Stagnitta and others, have proved such infection. Dr. Montenegro says: "Notwithstanding, since experiments are quoted having positive results, it is prudent to admit the possibility of infection by the alimentary canal. The frequency with which the experiments failed to carry out their intentions would make us incline to the belief that infection in this way is difficult, and on the whole is likely to be rare in practice. It is probable that the acids of the gastric juice on the one hand and on the other the abundance of bacteria in the intestine make infection difficult.

"Infection through the rectum is difficult in animals, but has

succeeded in many cases. It is very probable that to this mode of infection may be attributed some of the cases that have occurred in Levrée (Bombay)."

The observation of cases of bubonic plague has confirmed the decision that it is not a contagious or infectious disease as contagion and infection are generally understood. I have pointed out that the occurrence of more than one or two cases in the same premises is rare. Examples have been cited of a few huts being attacked simultaneously. No precise investigation has been made to show how the outbreak happened. It has been accepted on the theory of infection or contagion. I also hold that the septicæmic variety is not infectious, though the pneumonic is. The possibility of the affection of the lungs through air makes it a dangerous variety. The other sources of attack are the conjunctiva and vagina. In 1897 a nurse in Bombay received in the eye a particle of the sputum from a patient suffering from pneumonic plague. There was intense conjunctivitis. Swelling of the parotid and cervical glands followed and she died.

Such occurrences are very rare. Infection through vagina generally gave a negative result.

A consideration of the excretions which convey the contagion may not be without interest. The bacilli have been found in the pus of the buboes during the early period of suppuration, but disappear afterwards. They are abundant in the sputum of the pneumonic form. In urine and fæces they are generally rare and whenever found they are in small number. They have not been found in the sweat unless the skin is infected by the sputum or pus, etc. Milk has not been examined. In blood the bacilli are found in the latest stage of the disease but not always. According to Lustig from the fifth to the seventh day of the disease they are numerous.

It is said that the decrease and increase of the virulence of the plague diplococci may happen under certain circumstances. The fact has not been fully investigated.

With all our knowledge it is premature to assert the contagious or infectious character of the plague bacilli. The theory of disinfection which depends on them remains also doubtful. Dr. Metchnikoff in his lecture on *La Flore Microbienne du Corps Humain* at the Manchester Literary and Philosophical society on April 22, has said :—

"There is a tendency to renounce more or less completely the use of antiseptics and to have recourse more and more to simply mechanical measures for keeping microbes out of the body, the prolonged washing of the hands, for instance, or the moistening of the conjunctiva of the eye and other mucous membranes with liquids not strong enough to injure the living cells of the skin."

REVIEW.

The A B C Manual of Materia Medica and Therapeutics. By G. Hardy Clark, M.D. Boericke & Tafel, Philadelphia, 1901.

This book, like all Messrs Boericke & Tafel's publications, is very nicely got up,—the paper, the printing, and the binding being excellent. This is all the excellence we can predicate of this little book, which, we must confess, is one of the most strange and curious we have come across. The title of the book indicates that it is intended to be an elementary treatise on Materia Medica and Therapeutics for students and practitioners. As reviewer we have to see how far this intention has been carried out. And in order to do this we have to see what is the nature of the materia medica which the author has presented and what is the system of therapeutics he recommends for adoption.

All that we can gather about the author's views on medicine is from a short preface of a little over a page. Therein we find no mention of the school to which he belongs. Perhaps he delights in belonging to no school; but from what he says it is evident that he seems to be acquainted with the doctrines of Hahnemann, though he avoids all mention of homœopathy and of its immortal founder. He assumes that "there is a general agreement that the physiological effects of medicinal substances upon man is the safest and most useful guide to their selection in diseased states," and that, "excepting a few remedies whose uses have been established upon purely empirical grounds, and a very few others whose virtues depend upon chemical, antimicrobial or mechanical effect, this method is now generally adopted." He further assumes that "the physiological effects of drugs are divided into two classes, the non-toxic and the toxic, which are diametrically opposed to each other. Whatever may be the reasoning applied, it is generally admitted that non-toxic doses of a drug are curative of diseased conditions similar to states induced by toxic doses of that drug."

He cites as examples a few drugs to illustrate his meaning: "Pilocarpine and Picrotoxinum will, in toxic doses, cause profuse sweating with certain other phenomena. When profuse sweating with similar phenomena occur in disease these drugs in non-toxic doses are curative in their action. Cantharis, Oleum tere-

binthine and Copaiba in toxic doses produce irritation and inflammation of the urinary tract with certain specific phenomena, and are curative when these phenomena with irritation and inflammation of the urinary tract are found in diseased states. The same may be said of Digitalis, Nitro-glycerine and Strychnia for the heart, Hyoscyamus, Cannabis Indica and Valeriana for the nervous system, and so on." He admits "that drugs may be given in toxic doses to obtain therapeutic effects as, for example, Belladonna to check salivation and sweating, but for the reason that it is generally considered inadvisable to burden the sick with poisonous doses of drugs this procedure is now rarely employed."

Here we have in a nut-shell, in a few sentences, the cardinal doctrines of homœopathy stated and illustrated, and if what the author declares were fact, that is, if those doctrines were generally agreed upon and accepted, then homœopathy, as the only system founded upon the physiological effects of medicines would have been universally practised, which we know is sadly not the case.

What has prevented the author from taking the name of homœopathy is what we cannot make out, unless it be to avoid controversy which is one of the reasons he has assigned for publishing the book. Thus he says: "The writer has ventured to assume that the simplification of the subject gained by referring only to toxic effects of drugs, their therapeutic uses in non-toxic doses, the relation of the two as indicated by numerals, and the elimination of controversial matter, is sufficient warrant for offering this manual to students and to his fellow-practitioners." How by suppressing the name of the only system of medicine which has taught the therapeutic relation of the non-toxic to the toxic doses of drugs, all controversial matter has been or can be eliminated we cannot understand. This very relationship is the controversial matter, and it is a large, we might almost say, an audacious assumption to suppose that it will be implicitly taken for granted on the *ipse dixit* of the author, however he may assure his readers that his "material has been freely drawn from the writings" of Bartholow, Hempel Hughes, Ringer, Stillé, Wood and others," that is, from both old and new school authorities. We do not think it fair, or possible even if it were fair,

to indoctrinate the younger generation with the principles of homœopathy by ignoring its very name. The fact is now too widely known for such subterfuge to succeed.

Leaving aside these controversial and ethical points, let us see how the author has executed his self-imposed task. The following specimen taken at random will at a glance show this better than any description can :

ANTIMONII ET POTASSII TARTRAS.

Tartar Emetic.

CHARACTERISTICS.

Bronchc pneumonia with weakened state of the respiratory and cardiac muscles. The bronchi are loaded with mucus that is raised with great difficulty. Wheezing and rattling in the chest. Weak, rapid pulse, great prostration, sinking temperature. Diarrhœa with anxious nausea, straining to vomit, prostration and sweat on the forehead. The stools are watery, mucous, bilious or bloody.

TOXIC EFFECTS.

Feeling of great prostration. Fainting. Face pale or livid, coldness of the hands and feet, cold perspiration. Rapid and feeble pulse. Pronounced tendency toward failure of the cardiac and respiratory functions. Muscular system much relaxed with occasional cramp in the chest, abdomen and legs. Sense of great exhaustion.¹ Respiration rapid, or slow and very irregular, with sense of oppression in the chest. Bronchial catarrh. Inflammation of the bronchial tubes with free exudation of mucus. Pulmonary apoplexy.² Tongue coated with mucus. Nausea and vomiting. Violent and prolonged retching. Inflammation of the throat, œsophagus and stomach, with burning sensation and exudation of mucus. Enteritis and proctitis with increased secretions.³ Increased flow of saliva and buccal mucus, an abundant secretion from the gastric and intestinal glandular apparatus, and also from the pancreas and liver.⁴ Ulcers in mouth and throat, and inflamed pustular eruption on the skin.⁵

Dose.

Antimonii et potassii tartras. 1-12th to 1-6th gr.

By far the best therapeutic effects of this drug are obtained when given in doses not greater than the first decimal trituration. The second and third decimal triturations may be administered at more frequent intervals, and usually give even superior service. Vomiting is produced by one-half or one grain-doses in water every fifteen minutes, but its action is too severe for general use.

THERAPEUTIC USES.

Acute bronchitis from slight exposure to cold. Wheezing, difficulty of breathing, compelled to sit all night propped with pillows. Expectoration quite abundant.^{1 2}

Large collection of mucus in the bronchial tubes, expectorated with difficulty.^{1 2}

Broncho-pneumonia where the bronchi are loaded with mucus.²

Pneumonia; reabsorption slow. Bronchial tubes filled with exudate. Difficult, irregular respiration. Weak, rapid pulse, sinking temperature, cool skin.^{1 2}

Edema of the lungs.²

Cough, hoarse and weak. Respiration irregular, wheezing and asthmatic. Great prostration, feeble pulse, cold face and hands.^{1 2}

Catarrhal croup; face blue, skin cold and clammy, large quantities of mucus in the bronchi that can not be expectorated.^{1 2}

Acute catarrh of children accompanied by vomiting and diarrhœa.^{2 3 4}

Vomiting of large quantities of mucus and bilious matter.^{3 4}

Nausea causing great anxiety, in diarrhœa. Continuous anxious nausea, straining to vomit, with sweat on the forehead.^{1 3 4}

Watery, mucous, bilious, or bloody diarrhœa, with prostration and cold perspiration.^{1 3 4}

Mastitis.⁴

Orchitis.⁴

Tonsillitis.²

Mumps.⁴

Mercurial salivation.⁴

Renal dropsy produced by cold.

Pustular, erythematous and eczematous eruptions on an inflamed base.⁵

Smallpox.⁵

The plan of the author will thus be seen to be to give under each drug, first its CHARACTERISTICS, then its TOXIC EFFECTS, then its DOSE, then its THERAPEUTIC USES. We fail to see any real distinction between the characteristics and the therapeutic uses. The dose is almost invariably too dangerously large for homœopathic purposes. The correspondence between the toxic effects and the therapeutic uses is not always correctly indicated by the figures. Thus some of the therapeutic effects marked, in the above can by no stretch of the imagination be made to correspond with the pathogenetic or toxic effects marked by the same figure. The testes and the mammæ cannot possibly come under the class of gastric or intestinal glandular apparatus, and yet we are told that mastitis and orchitis are curable by Tartar emetic, though no mention is made of any toxic effects of the drug on these glands. We could point out similar faults and defects under almost each drug treated of. Altogether, we are sorry to be obliged to say that the book is not at all a reliable or a desirable one.

EDITOR'S NOTES.

Treatment of Acne by X Rays.

Ullmann (*Wien. klin. Woch.*, No. 8, 1901) reports a case of severe acne of the back in a patient, aged 16, treated by the x rays. Fifty exposures of half an hour were given. After fifteen sittings the acne spots swelled, and there was diffuse erythema of the skin. Afterwards the acne spots shrunk, while the skin over them exfoliated.—*Brit. Med. Journ.*, May 25, 1901.

Painless Labours.

O. Macé (*L'Obstét.*, vi, p. 54, January, 1901) reported at a recent meeting of the Obstetrical Society of Paris two cases of painless confinement. In the first the patient was a primipara of 20 years of age; and until the dilatation of the cervix was complete, and efforts at expulsion had commenced, the uterine contractions were quite painless. In the second case, the mother, aged 25, a tripara, had previously had very rapid labours; she awoke in the middle of the night without pains, but during micturition the fetal head appeared at the vulva, and was soon born with one of the parietal bones fractured, although there had been no interference, no rupture of the cord, and no falling of the child upon the ground. The medico-legal interest of the cases and especially of the second one, was self-evident. In the discussion which followed Macé's communication it was suggested by Bar that the fracture might be a developmental anomaly, but Budin did not think that its clearly marked characters pointed to such a conclusion.—*Brit. Med. Journ.*, May 25, 1901.

Quinic Acid.

Sternfeld of Munich (*Munch. med. Woch.*, No. 7, 1901) strongly recommends quinic acid as a remedy for gout, owing to its strong solvent action on uric acid in the blood. It has none of the disagreeable effects of quinine, and when in the body it is converted into benzoic acid, which, united with nitrogenous waste products, gets excreted in the urine as hippuric (amido-benzoic) acid. The combination of quinic acid into an alkali, as, for example, lithium quinate has been found effective both in dissolving uric acid and in promoting diuresis and the excretion of uric acid. He gives it in the form of tablets (prepared by Limmer and Co. of Frankfort) of $\frac{1}{2}$ gram each (8 grs.), and administers from 6 to 10 tablets a day. As the result of treating a considerable number of cases he concludes that quinic

acid is a specific for gout, as are the salicylates for acute articular rheumatism and quinine for malaria. The only drawback at present as regards lithium quinate is its high price, a tube of 25 tablets costing about 3.50 marks. The results, however, are so gratifying that in private practice at least this treatment should be preferred to that by other drugs.—*Brit. Med. Journ.*, May 18, 1901.

Bronzed Skin in Diabetes.

Mimi (*Rivist. Crit. di Clin. Med.*, March 16th, 1901) reports the case of a woman, aged 59, whose father and three brothers had died of phthisis. In December, 1898, she first noticed great weakness, unusual thirst, and pigmentation on her arm. These symptoms increased, and on admission (March 6th, 1899) almost the whole of the skin was bronzed except the soles of the feet and the palms of the hand (the palmar and interphalangeal sulci were, however, deeply pigmented). The bronzing was very slight on the dorsum of the foot and over the patellar region. The pigmentation was very marked over the dorsal surface of the fingers. The tongue was non-pigmented, but the oral mucous membrane was sparsely dotted with brownish maculæ. The genital mucous membrane was normal. The woman was wasted, and the inguinal and axillary glands slightly enlarged and hard. Nothing abnormal was detected in the abdominal or thoracic viscera. On March 18th troublesome diarrhoea, with left lumbo-abdominal pain, set in, which was checked by administering suprarenal capsule tabloids. The urine (specific gravity 1025) contained from 2 to 4 per cent. of sugar: there was no albumen or peptone. The glycosuria definitely disappeared on April 26th. There was no steatorrhœa. In the beginning of 1900 the patient left the hospital quite well; no bronzing, no glycosuria.—*Brit. Med. Journ.*, May 18, 1901.

Changes in the Spinal Cord Secondary to Amputation.

Switalski (*Rev. Neurol.*, January 15th, 1901) reported the results of the microscopical examination of 5 spinal cords taken from patients who had had amputations—namely, 4 cases of amputation of the thigh, and one of amputation below the knee, the pathological examination being made at the Bicetre (laboratory of P. Marie). (1) In every case there was found an atrophy of the half of the spinal cord corresponding to the side of amputation; both white and grey substance participated in the atrophy. (2) In 3 cases the diminution of volume could be traced from the lumbar part of the spinal cord

upwards to the dorsal region of the same side, and in 2 cases this was also traceable to the cervical region of the cord. (3) Simultaneously with the atrophy there appeared a sclerosis of the posterior columns. In 3 cases this could be traced in all levels of the cord, in 2 cases it appeared in the cervical region. (4) While the spinal hemiatrophy shows a tendency to diminish from below upwards, the sclerosis of the posterior columns (of Goll and Burdach) becomes more marked than from below upwards. In the discussion which followed the communication of the above (at the Paris Neurological Society), Pierre Marie remarked that whereas the current pathological belief was that in cases of amputation the spinal cord lesion consisted of simple atrophy, this could no longer be maintained, and that sclerosis occurred to a marked extent. Such sclerosis existed even in the opposite side of the spinal cord, and it was interesting to note that in a case of amputation of the thigh the sclerosis was most marked in the cervical portion of the cord.—*Brit. Med. Journ.*, June 1, 1901.

Acute Pulmonary Complications in Malaria.

Crespin and Maifert have investigated some of the lesions present in the lungs in cases of malaria, more especially the broncho-pneumonic (*Arch. Gén. de Méd.*, April 1901). They find that acute bronchitis is frequent in many cases of malaria and that the bronchial lesion is most marked in the bases, especially on the left side. The bronchial complication seems to be in proportion to the amount of lesion present in the spleen and liver. Pulmonary congestion is also common, but varies very much in its intensity in different cases. Pneumonia is also present in several cases, and the prognosis is extremely uncertain, death taking place in a large number. Pneumonia may come on after the malarial attack, and supervening in cases of malaria of long standing is very serious. The temperature in malarial pneumonia is deceptive, and in many cases of post malaria there may not be a very high degree of pyrexia. In fact the writers describe an epyrexia pneumonia of a very serious type. Pneumonia is due to the pneumococcus, not to the hæmatozoa. There is therefore nothing specific in this form of pneumonia. The relation of this latter to the pneumonic process is not quite easy to understand. It is suggested by the writers that its tendency to cause congestion creates a predisposition to a pneumococcal infection. The writers also draw attention to the fact, which has been several times noted that in malaria there may be an apical consolidation stimulating phthisis in many of its characteristics. A curious point about the

apical consolidation met with in malarial cases is its tendency to pass to the opposite apex with extreme rapidity. In twenty-four hours the upper portion of one lung may have completely consolidated. The treatment of all these complications is the free exhibition of quinine. This does not, however, mean, according to the authors, that the pulmonary condition is a specific one. The action of quinine is widespread and seems to reduce congestion in the organs generally, and therefore favours the resolution of the pneumonic process.—*Brit. Med. Journ.*, May 18, 1901.

Congenital Malposition of the Intestines.

The following case, which is published in the *Intercolonial Medical Journal of Australasia* by Mr. R. Hamilton Russell, is of interest both on account of the rarity of the pathological condition and the peculiarity of the symptoms. A boy, aged 11 years, was admitted to hospital. When seen on the following morning he was found in bed in the "knee-elbow position" and moaning with abdominal pain. The eyes were sunken, the skin was dry and scurfy, and the body was wasted. With difficulty he was induced to lie on his back, when the abdomen was found to be retracted. Examination of the abdomen seemed to bring on an attack of colicky pain which caused him to resume the knee-elbow position. He then commenced to vomit bile-stained fluid. The illness had commenced a fortnight previously with sudden abdominal pain and vomiting which continued more or less up to the time of admission. During this time the bowels acted only with the aid of enemata. At the age of three years an attack similar to the present one occurred. After six years of immunity another occurred. The practitioner who attended him said there was great difficulty in examining him on account of his "assuming a position like that figured to show the postural treatment of prolapsed funis." A month or two later another attack occurred which lasted three weeks. The mother "was sure the child was wrong inside." "His appetite had never been like that of other children; he often ate ravenously and craved for extraordinary article." Some form of incomplete intestinal obstruction was diagnosed. As the child was seriously depressed and as he had recovered from similar attacks it was decided to postpone operation. An enema brought away a fairly copious motion. On the following morning he became collapsed and died. The necropsy showed deep congestion of the ascending and first part of the transverse colon and of the whole of the small intestine. The transverse colon was obstructed by the passage over

it of a dense band. The exact anatomical condition could not be made out until the whole of the intestines had been removed from the body. The band was then found to be the first part of the jejunum together with the whole thickness of the mesentery, which took a sharp turn upwards to the right, passed in front of the transverse colon, then arched over and descended behind it. The entire small intestine was, so to speak, conveyed behind the ascending colon which was dilated and completely enveloped in peritonium. This remarkable malposition of the intestines appears to have been of congenital origin and connected with the developmental migration of the cæcum. Mr. Russell suggests that the constant assumption by the child of the knee-elbow position was due to relief afforded from the pain which no doubt was chiefly caused by dragging upon the nerves of the mesentery.—*Lancet*, May 18, 1901.

The Brains of Two Distinguished Physicians.

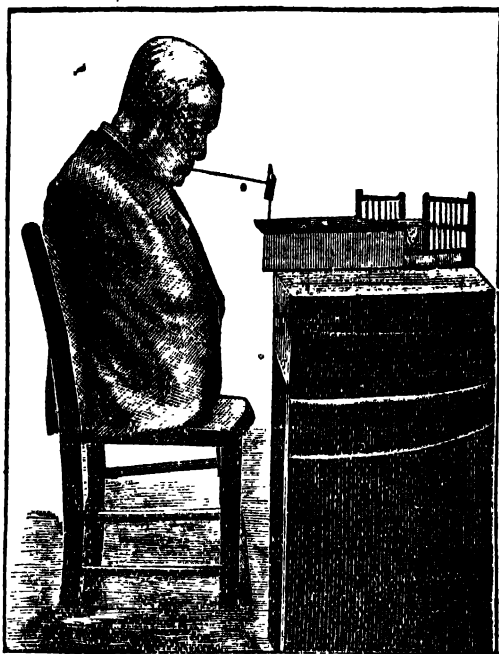
The study of the brains of distinguished men is always fraught with interest because of the possibility of correlating exceptional endowments with special conditions of cerebral organization and development. Up to the present day but few brains of really eminent men have been studied and described, the few including those of Chauncey Wright, Grote, Gauss, Gambetta, Helmholtz, and a few others. In the *Philadelphia Medical Journal* of April 6th Dr. E. A. Spitzka gives a description of the brains of two distinguished physicians—father and son. The elder, Dr. Edouard Seguin, was born in France in 1812 of a family which had distinguished itself for generations in medicine and the fine arts. Seguin became a physician and associated himself with Esquirol in the great work of the humane treatment of lunatics which the latter was then carrying on, devoting himself specially to the care and treatment of idiocy and imbecility. For over 40 years he was physician at the Hospice de Bicetre and published works which immediately assumed a classical importance in regard to the subject of the education and treatment of the feeble-minded and the imbecile. He died in October, 1880. His son, Professor Edward Constant Seguin, was born in 1843, and after pursuing his medical studies in New York was appointed lecturer on diseases of the nervous system and insanity at the College of Physicians and Surgeons, New York, in 1871. He made valuable and original contributions to the pathology and therapeutics of nervous disorders and was one of the pioneers of American neurology. He died in February, 1898. The brain of the elder Seguin, says Dr. Spitzka, was normal in appearance and texture and weighed 1257 grammes, the weight being slightly below the average, a condition which Dr. Spitzka thinks may have been due to "some wasting of the brain-tissue from disease or age, or both." Its characteristic features are summed up as follows: (1) marked development with great breadth and fulness of the frontal lobes; (2) a great width and ample development of the parietal and temporal lobes; (3) relative smallness of the cuneus on both sides, especially the left; (4) general tortuosity of the fissures and gyri; (5) an exceptionally full development of the insula, and espe-

cially of its anterior part, so that on one side (the left) this part of the insula was not covered by the operculum but remained exposed ; and (6) the frontal gyri were the most complex of the entire brain, being particularly rich in their windings. The speech-centre of Broca was also very well developed. "There is that in the 'physiognomy' of the brain, as in the son's," says Dr. Spitzka, "which it would be impossible to describe otherwise than to say that it portrays the culture, refinement, and intellectual capacity of its erstwhile owner when living." The brain of the younger Seguin weighed 1502 grammes, the right hemisphere being 642 grammes and the left 653. As in the father's brain there was a slight but unquestionable exposure of the anterior part of the left insula. There was ample development of the frontal lobes and relatively small development of the occipital lobes. Hitherto an uncovered insula has only been found in the brains of imbeciles and mentally defective persons and in negroes, this condition being associated with insufficient development of the opercula. In the case of the Seguins, however, the explanation is different. The opercular regions are by no means defective in development, but are well developed. The insula, however, has been the seat of exceptionally marked development so that it has "virtually thrust apart the opercula and made itself visible." This view of the relative hypertrophy of the insula is supported by an elaborate series of measurements made of the fissures in and around it. Dr. Spitzka wishes to correlate this with the exceptional linguistic capacity of the Seguins, both father and son being fluent speakers and writers of three languages—English, French, and German.—*Lancet*, May 25, 1901.

The Truncated Man.

This remarkable person, who was exhibited in Paris at the time of the Exposition, is one of the rare examples of a human being who has been from birth deprived of his arms and legs ; he was born in France in the department of Morihan (Brittany), his father and mother being in easy circumstances and living upon a small farm. Both the parents are of good constitution and physically normal. Their son, now about twenty-five years of age, has no apparent trace of arms or legs, and hence is generally known by the name of l'Homme Tronc, or Trunk Man. Outside of this remarkable peculiarity, the rest of his body does not present any marked variations from the normal ; the head is somewhat large in proportion to the body ; the capillary system is but little developed, and the head shows a premature baldness. His parents have always taken great care of him, and he lives in a normal way (apart from the use of his members), as none of the essential organs of life are wanting ; he eats, drinks, and digests like another person, but if left to himself he would undoubtedly die, as it is impossible for him to move his body in order to procure food. It may be thought that his condition would react upon the mind, and that he would be of a sad disposition and place but little value upon existence ; on the contrary, he seems to be satisfied with life. The writer questioned him upon this point and he responded that he was

quite contented with existence ; he does not suffer from want of occupation, as might be supposed, as he has different kinds of work to keep him busy. One of his chief occupations is that of making small tables and chairs, and other objects, by nailing together pieces of wood which have been previously cut out for him. One of the engravings shows him engaged in this work. He takes a nail in his mouth, plants it in the wood and drives it in very adroitly ; he also threads a needle with his mouth, and can take up a glass or metal cup which is given him to drink and empty it without spilling a drop. He seems to be sufficiently intelligent, without being particularly so. At the time of the exposition he was put on exhibition in a small hall near the grounds.—*Scientific American*, Feb. 16, 1901.



Making Toy Furniture.

The Cerebral Pathology of Hereditary Chorea.

An interesting contribution which throws light on the hitherto obscure pathology of hereditary or Huntington's chorea has been published in the *Revue Neurologique* of May 15th by Lannois, Paviot, and Mouisset. In a previous publication, Keraval and Raviart stated that they found the following changes in the nervous system in a fatal case of hereditary chorea : rarefaction of the perinuclear protoplasm, even to the extent of disintegration, in the large pyramidal and small nerve-cells of the cerebral cortex ; an infiltration of small round cells into the pericellular and perivascular spaces ; swollen nuclei and faint staining of the protoplasm of the cell-bodies in the nerve-cells of the central convolutions ; and similar changes in the cells of the spinal cord, especially in Clarke's column. Weigert's method also showed a diminution of the nerve-fibres in the superficial layer of the cerebral cortex (Exner's plexus) and a moniliform degeneration of nerve-fibres in various depths of the cortex. The "small round cells" alluded to above stained green with Rosin's methods, like the nuclei of neuroglia cells. Kattwinkel who investigated a

case found a similar proliferation of small round cells, but regarded them as mononuclear leucocytes. The present case was as follows. A man, aged 68 years, by occupation a gardener, had suffered from chorea since 1872, but since 1896 as the result of an accident the symptoms had grown very severe. His father had died at the age of 80 years from the same complaint, and the patient's only brother, aged 65 years, was a sufferer from chronic chorea for many years. There was no history of alcohol or syphilis in the patient. He was thin and emaciated and had twitching of the face, lips, and eyes resembling grimaces. They occurred during both speech and silence and were accompanied by jerky movements of the eyeballs and of the nostrils. There were also present oscillations of the head and purposeless and choreic movements of the arms, legs, and trunk. On the patients lying down these movements diminished and voluntary effort arrested them for a while. All these movements were incoördinate and arrhythmic. Speech was hesitating and jerky and difficult to understand owing to the irregular movements of the lips and tongue. The general strength was good. No trophic disturbances or troubles of the sphincters were present. There were no stigmata of degeneration, except as regards the ears which showed a marked folding of the helix. The patient was loquacious and was inclined to slight incoherence of speech. There was some arteriosclerosis. Obstinate constipation prevailed. The urine was free from albumin or sugar. The patient died from cachexia in March 1900. The necropsy showed that all the internal organs were small and wasted in appearance. There was old tuberculosis of both apices of the lungs. The brain was of normal volume. Examination of the ascending frontal convolution after staining with Nissl's method showed an infiltration of small round cells in the molecular layer, but the medium-sized and small blood-vessels appeared normal. The nuclei of these round cells were blue and homogeneous in appearance, and were clothed with a pellicle of protoplasm unlike normal neuroglia cells. These cells occurred in nests of two, three, or four, and in the pericellular sacs of the large nerve-cells they were numerous and conspicuous. The pyramidal cells showed an excess of yellow pigment in proportion with the age of the patient. Some pyramidal cells were pale and almost uniformly stainless. Only the larger cortical vessels showed proliferation of the perivascular sheath, especially in their course through the white matter. The ascending parietal convolution showed similar changes. No degenerated nerve fibres could be found with Marchi's method in Exner's plexus. The cervical spinal cord showed with Nissl's method a normal condition of the nerve-cells. The spinal nerve-roots and meninges were normal. Hence the lesion was one of the cerebral cortex and from its nature it appeared to be incurable.—*Lancet*, June 8, 1901.

CLINICAL RECORD.

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Indian.

A CASE OF PLAGUE.

BY DR. HEM CHANDRA RAY CHAUDHURI, L.M.S.

A Hindu lady, aged 63, was first seen by me at about 8 P.M., on the 28th February, 1901.

History. On Monday, the 25th February, she was complaining of heaviness of the head and was lying in a lethargic state. She was not altogether unconscious, and could go here and there in the house, if required.

26th. She complained of the same kind of heaviness of the head and lassitude. It was thought that she had slight fever.

27th. In the morning she said that she felt better than before, though the lethargic state was more pronounced. There was distinct heat in the body which spoke of fever. In the evening she was asked the system of treatment she preferred. She replied Kabiraji. After 10 P.M. it was observed that she was groaning and could not reply as to the nature of the pain.

28th. In the early morning at about 4 A.M., she went to urinate and was found to groan there lying unconscious. She was then removed to her bed. After day-break consciousness seemed to have partially returned. She washed her face in a sitting posture. But the answers to questions were yes or no. A medical practitioner was called. He gave her an old school mixture which she did not swallow but spat out. When the mixture was again given she said in an indistinct voice, why do you disturb me? Afterwards on administering milk she threw it out in the same manner. In fact it seemed that she refused all liquid food, though no solid was tried. At 8 A.M., when I saw her she was totally unconscious, and was very irritable on being touched for the purpose of feeling the pulse, etc. The pupils were slightly dilated. She did not allow us to place a thermometer in her axilla, expressing a kind of inarticulate sound of anger. Milk was tried by me but it was thrown out as before. A second attempt was made to take the temperature and with great difficulty the thermometer could be placed only three minutes. The temperature was 97°. From the touch of her body it was evident that she had no fever. *Bell 30 globules.*

1st March. She was in the same state, except the rolling of the head from side to side which she had yester-morning. She tried to get up but was restrained from doing so. The irritation she expressed when made to drink water or milk, or when an attempt was made to place the thermometer in her axilla, was the same. She sometimes threw away the medicine globules from her mouth.

At 9 A.M., it was reported that she had an inclination to sleep. 7 P.M. The report was she seemed to be somewhat conscious.

2nd. There was decided improvement in many respects. She went to urinate in the proper place. She spoke feebly but rationally. She was taking milk, water, etc., regularly. *Bell 30 globules continued.*

Her state began to improve and was given rice on the 6th March. Since then she was doing well.

Remarks.

The subnormal temperature attended with unconsciousness and hydrophobic symptoms, unmistakably point it out as a peculiar case of plague. There was no bubonic enlargement, nor had she diarrhoea. Costiveness was marked during her illness. The disease cannot be specified either bubonic, pneumonic or gastro-intestinal. The only remaining variety, septicæmic can include it. It is impossible to place it clinically with gastro-intestinal as Dr. Atkinson, the medical officer of Hong Kong, has suggested.

Foreign.

A CASE OF TYPHOID FEVER DURING PREGNANCY BENEFITED BY COLD BATH.

By A. E. HAWKES, M.D., (Brux.), F.C.S.

Medical Officer to the Hahnemann Hospital, Liverpool.

Mrs. E. G., aged 37, was admitted into the Hahnemann Hospital on June 6, 1898. She was suffering from enteric fever, and subsequently her husband and two of her children came to the hospital with the same disease.

They recovered, but the epidemic was somewhat more than usually fatal in their district, which is not far from Liverpool, but in another county. It was stated that she had four children under four years of age—and that she had some children older than these—moreover she was again pregnant at about the fourth month.

I gathered that before admission she had been taking baptisia, as her temperature had reached 103°F., and her pulse 116 per minute.

The abdomen was not morbidly distended, there were spots to be seen, and these came in crops.

She had diarrhoea, and the urine gave the characteristic reaction with sulphuric acid.

There was also one-fourth of albumen thrown down by the nitric acid test.

She was sensible on June 5, but on June 6, after a long ride in the ambulance, she did not recognise me. Her temperature on arrival was 99.2°F., rising at night to 103.2°F. It fell next morning to 101.4°, but it rose to 104°F. at 2 P.M., and a little later she was put into a bath at about 70°F., her face sponged with cold water, and her legs and chest rubbed. She was kept in the bath seven minutes, and her temperature fell to 101°.

It fell from 103.4° to 102° on her being sponged the next day.

It may be stated that before the bath the pulse was 120 per minute, regular, face flushed. After the bath, pulse 108, full; temperature 101.6° F.

The bath was tried the next day with a similar result.

On the following day—June 9—no bath was needed. On June 10 the temperature fell to 98.6° F., and a few doses of terebinth were given for obvious reasons. It rose at 8 P.M. to 102.2°, and the bath reduced it to 100° F. The diarrhoea persisted. I gave arsenicum, and occasionally hyos. was called for at night.

Up to the 12th she was sponged several times, but that process was less effectual than the bath and its action more transient.

After that date sponging was more often resorted to than the bath. She had ten cold baths, which I helped to administer on each occasion.

As the case progressed the first sound indicated stimulants, and she had some 3 oz. per diem.

I would say that the temperature was unusually low during early convalescence, but hæmorrhage did not occur.

Arsen., merc. cor., terebinth and my favourite lachesis—cardiac weakness—were given.

I heard the foetal heart on July 1, and she was delivered without anxiety in due course, and since, yet another addition to the family circle has been announced to me by the mother herself. I have ample details in my journal, if such should be required by any.—*Journ. of the Brit. Hom. Society*, April 1901.

CASES CURED BY LACHESIS.

By DR. I. DENVER, M.D., CLINTON, N. Y.

Case 1. Ulcer on the left heel. The first case is that of a patient sixty-nine years old, an allopathic druggist by occupation, of nervous, sanguine temperament. March 6th I was first called to see him and found him with a temp. of 104. pulse 130. His wife told me he came from his business place with a chill. I soon learned the history of the case, which was as follows: For ten years he had been suffering with a sore toe, the small toe on the left foot. There was a deep ulcer fully as large as a silver dollar on the heel which was blue. The sole of the foot was highly inflamed and tender to touch, foot swollen and blue, ulcer blue. The pain streaked up to the inguinal glands, which were swollen; he complained of being stiff all over, and full of sharp pain; his tongue was stiff, but he talked all the time; thought he was laboring under the effects of blood poisoning. I thought so too, and do to this day. I gave him one dose of Lachesis cm. [Fincke] followed by placebo, a dose to be taken every hour through the night.

The next morning I found him greatly relieved. His wife told me that he had perspired to such an extent that she had been forced to strip him to the buff and even change the bed clothes. The color of the bed clothes was changed yellow by the perspiration from his body. I continued placebo and at this time he expresses himself as well; the ulcer healed for the first time since it first appeared ten years or more since.

Case 2. Bedsore. The other case was that of an old man, eighty four, who fractured the neck of the femur last December. Through poor nursing and general neglect he was allowed to become bed-ridden. He had a number of large, deep, blue or black bed sores on his back, also one on his right foot between the heel and external malleolus; the foot was much swollen, presenting a blue mottled appearance. I prescribed Lachesis 200 followed by placebo, which caused a copious flow of urine followed with healing of the sores and an improved condition of the general health.—*Medical Advance*, May 1901.

Gleanings from Contemporary Literature.**FLIES AND THE SCIENCE OF SCAVENGING**

By G. V. POORE, M.D., F.R.C.P. Lond.,

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In the recent debate at the Clinical Society of London on Dr. H. H. Tooth's paper on Enteric Fever in South Africa it was established : (1) that the number of flies in our camps was prodigious ; and (2) that these flies were largely a result of the military occupation. There seems also to have been a very general consensus of opinion (3) that flies may convey infection. It becomes therefore of great importance to consider the genesis of flies ; and I trust that one who has no claims to be considered a dipterologist may be pardoned for recalling a few common facts.

Flies multiply at a prodigious rate. Given a temperature sufficiently high to hatch the eggs, their numbers are only limited by the amount of food available for them. Linnæus is credited with the saying that three meat-flies, by reason of their rapid multiplication, would consume a dead horse quicker than would a lion, and the fact that certain diptera having some outward resemblance to the honey-bee lay their eggs in the dead carcasses of animals probably led Samson and Virgil to make erroneous statements with regard to the genesis of honey and the manufacture of bees. The breeding of "gentles" for ground-bait is an industry the practisers of which could probably give much information as to the nicety of choice exercised by flies in selecting material for feeding and egg-laying. According to Packard the house-fly makes selection of horse-dung by preference for ovipositing, and as each female lays about 120 eggs and the cycle of changes from egg to fly is completed in less than three weeks it seems probable that a female fly might have some 25,000,000 descendants in the course of a hot summer. Other varieties of flies multiply, I believe, still more rapidly.

As flies multiply upon, and in, organic refuse, of every kind it is obvious that the sooner such refuse is placed where it cannot serve for the feeding and hatching of flies the more likely is the plague of flies to be lessened. The most commonly available method for the bestowal of organic refuse is burial. The egg-laying of flies in dead carcasses commences at the very instant of death, or even before death in the case of enfeebled animals. This fact has been insisted upon by Megnin in "*La Faune des Cadavres*" and appears to be true of human beings dying from fever. It is obvious, therefore, that there must be no delay in the burial of organic refuse and that the burial of animals and excreta is quite as important as the burial of human beings. After a great battle it may not be possible to follow this advice, but nevertheless there can be no harm in insisting that the instant burial of all organic refuse must be the aim of those who are called upon to guard the public health, whether military or civil.

It is impossible to lay down any line of action which shall be the best under all circumstances, and those who, like myself, have not been through the South African campaign, are incompetent to deal with the special circumstances of that campaign. Nevertheless, I am of opinion that much that I have witnessed on Salisbury Plain in connexion with camp-scavenging is bad and is not calculated to teach the soldier the right principles of dealing with organic refuse which is always his most dangerous enemy. The science of scavenging requires to be taught. If the duty of scavenging be left to the ignorant and be controlled by persons who think that necessary details are beneath their notice then annoyance and disease are the only results possible.

If the scavengings of a camp are to be satisfactorily dealt with the question of their ultimate disposal must be ever present in the mind of the scavenger. The materials collected have to be burnt, to be buried, or to be otherwise dealt with. The mere dumping of refuse in mixed heaps ought certainly to be abandoned and the contents of the latrines ought to undergo immediate superficial burial at the nearest available spot in order to avoid cartage and spilling. In many cases it should be possible to bury the excreta in the immediate vicinity of the spot where they are dropped. We hear of excreta being buried in trenches 10 feet deep, but such a course must mean that they are left exposed to give off odours and to breed flies for many hours before they are under ground and covered up. I have consulted a gravedigger on this question and asked him, "if you were ordered to dig a grave 10 feet deep what breadth and length would be necessary and what time would you require?" His reply was that (in chalk) the grave would have to be six and a half feet long and three and a half feet wide, and that he would require a day and a half to complete the work. It is certain that 36 or 48 hours' delay in the disposal of fæces is most undesirable. I have always advocated the burial of fæces in shallow furrows rather than in deep trenches, and, in this country at least, where alone I have had experience, I am convinced that this is the only reasonable course to pursue. If properly done all offence to eyes or nose is thus ended and the fæces cease to attract either flies or rats. The fæces can be covered continuously as soon as they are dropped and there is no need of having malodorous open trenches partially filled which are waiting to be completely filled before being covered up.

This burial of fæces must be done methodically and carefully and with every attention to detail. The proceedings must be precisely those of a gardener who is intent upon raising crops. The fact that in war the crops may never be harvested is quite beside the mark and affords no excuse for slovenly procedures which are a danger to health. Nitrification in the soil is the aim equally of the sanitarian and the agriculturist. If a plot of ground 50 yards long and 50 yards wide—slightly more than half an acre—be allotted for the disposal of fæces this should be marked off into, say, 16 strips, each about eight feet wide and 50 yards long, with a narrow path of about 18 inches between each strip to allow for watering and cultivation.

The line of the furrows must be accurately marked by a cord and reel in the ordinary way, and the digger must move continuously backwards in order to avoid trampling on the freshly dug ground. The making of the furrows should commence at the point furthest from the latrines and it should gradually come nearer to them. The earth removed from the first furrow should be wheeled down near the latrines where it will be ultimately wanted to cover the last furrow which is dug. The capacity of the furrow or little trench will depend upon the size of the spade. I find that working in ordinary garden soil with a spade having a blade nine inches long and seven inches wide (the furrow being consequently nine inches deep and seven inches wide), eight stable-bucketfuls of soil each holding two and a half gallons, or about 22 pounds weight of earth, were removed. This amounts to two and a half bushels of soil, weighing 176 pounds, as the measure of the capacity of a trenchlet eight feet long. This trench must be filled with excreta and great care must be taken that nothing except *fæces* and paper and the accompanying urine is placed in it. If broken crockery or old tins are accidentally mixed with the excreta they must be removed. The trench being filled with *fæces*, mark out a digging line at a distance equal to the width of the spade (seven inches) behind the edge of the first trench and then cover the *fæces* in the first trench by the earth removed in making the second. Owing to the draining away of urine and moisture and their great compressibility it will be found that the excreta undergo a considerable diminution of bulk when tipped into the trench. When the earth of the second trench has been removed and shovelled on to the top of the first trench it will be found that there is a raising of the general level of the ground and the second trench will be found to have a cross section which is rather triangular than rectangular owing to the oblique direction of its front wall which is composed of a sloping bank of friable earth. The surface of the ground must be left crumbly, smooth, and perfectly neat, like a well-prepared garden bed. No particle of *fæces* or paper must be left uncovered. There will be no offence to eye or nose, no putrefaction is possible and the *fæces* are beyond the reach of dipterous insects, and if there has been no delay in the collection and burial of the *fæces* they cannot have been used for oviposition to any great extent, so that the soil will not become infested with "grubs."

How many men will provide the quantity of *fæces* which can be placed in a trench eight feet long from which 176 pounds weight of earth have been removed? The answer to this question is governed by bulk rather than by weight. If *fæces* and earth were equal in bulk for equal weights and if we allow a quarter of a pound of *fæces* for each man—for the urine soaks away and *quæ* bulk may be neglected—then the answer would be $176 \times 4 = 704$. If the *fæces* are weight for weight four times as bulky as the earth, the answer is 176. In any case it seems safe to say that a trench eight feet long, nine inches deep, and seven inches wide will suffice to take the *fæces* of 100 men. This estimate entirely accords with my experience gained in my garden at Andover where the *fæcal* accumulations of 20 cottages have been disposed

of daily in the manner indicated for 18 years and where it takes at least five years to cover an acre of ground in this way. Those who have not had experience of this method of dealing with *fæces* are apt to have exaggerated views as to the amount of land required. If a trench eight feet long and seven inches wide is sufficient for the disposal of the daily quota of excreta from 100 men, then 10 such trenches occupying an area of eight feet by 70 inches—say six feet—is enough for 1000 men and one strip of ground 50 yards long and eight feet wide would serve for a regiment of 1000 men for 25 days, and the 16 strips would serve for 400 days—let us say half an acre per annum per 1000 men. The actual area necessary will depend to some extent upon the nature of the soil and the care and skill of the scavenger, but in no case can the area required be regarded as a bar to the process—certainly not on the veldt or on Salisbury Plain. It need not be insisted on that a scavenger must be incessantly at work. The excreta should be taken up as soon as dropped and be placed in a covered pail, and the pail when full should be emptied into the furrow and covered up. In this way effluvia are stopped and ovipositing by diptera is rendered impossible. Further, this method of disposing of *fæces* necessitates no increase of the impediments of an army; no lime or chemicals are needed and no apparatus beyond a spade and a set of garden tools.

The ground beneath which the *fæces* are deposited should when the work is done have the appearance of a well prepared garden bed and it will need a little attention until it is covered with herbage of some kind. The only question remaining to be decided is as to what that herbage should be. There can be no camp without water-supply, and in every camp one of the sanitary problems is the disposal of waste water. Some of this waste water should be used in time of drought for laying dust and encouraging fertility in that small area of ground beneath the well-tilled surface of which the *fæces* are safely bestowed. Then, the higher the temperature the quicker will the ground bring forth green leaves to freshen the air. Whether the crop be grass, cabbage, cereals, onions, mustard and cress, lettuces, spinach, or what not must depend upon circumstances. I think the seeds sown in such ground should always be those of culinary vegetables which may prove a real blessing if the camp be long occupied. With a little care in a hot climate one may have a green covering of grass or mustard and cress in a week which at least will give off oxygen to the air even if it do not serve as an anti-scorbutic diet for man and beast—a diet which may just supply that something which is lacking in tinned and salted provisions.

In a temporary camp these methods of excrement disposal are the best on the grounds of immediate hygiene. In places like Salisbury Plain which are to be used as camping grounds year after year, latrine gardens are essential and, if properly managed, should furnish a good many acceptable extras for the contents. Last year at Perham, on Salisbury Plain, there was a field of many acres occupied by the scavenging contractor and placed a few hundred yards from the camping ground. On this were piled heaps of camp refuse, old tins, meat bones, broken victuals, packing

materials, and faeces which had been "dumped" with a view to burning when dry enough. In their recent state these heaps (in which flies were swarming) could be smelt for a quarter of a mile down wind and when they began to burn the offensive smoke drifted still further and not seldom over the camps themselves. This haphazard method of "dumping" refuse in pestiferous heaps is not economical, not even from the point of view of the area of ground required, and would be rendered unnecessary by a little care in collection and the judicious use of the spade by men who knew how to turn these despised materials to profitable account. Horse-dung in the same way should be neatly stacked in heaps like hotbeds, protected at the sides and covered with earth. In this way the flies would be prevented from feeding and egg-laying on the dung, large quantities of saladings might be produced, and when the camp was moved this well-rotted material should be applied to the camping ground with a view to the renovation of the turf. On Salisbury Plain the growth of summer is trodden under foot and there is no systematic renovation in the winter. On turf downs the actual camping ground should be changed every year and the ground "top dressed" as soon as the camp breaks up in the autumn. Without careful management and good husbandry these downs will soon be trampled and scuffled into a dusty wilderness. In the same way all the kitchen refuse should (after utilisation to a maximum extent in the stock-pot, &c.) be neatly stacked, protected at the sides, and covered with earth. All organic refuse should be completely protected by soil from the attacks of diptera and its fertilising properties should be utilised forthwith.

It is sometimes said that we ought to be ready to forgive the house-flies for the annoyance which they cause to us because of their great services as scavengers; but I am rather inclined to take the view that the presence of flies is a reproach to us for not putting organic refuse to its proper use and that the fly is a robber which has been bred in material which we have deliberately allowed to lie above ground instead of covering it with soil. The scrupulous sweeping up of crumbs and food particles immediately after meals and the instant removal of the remains of food to fly-proof larders need not be insisted upon. I believe that a great advance in domestic hygiene will have been made when the custom is more general of removing dung every day from our stables, piggeries, cattle-sheds, and poultry-runs, and stacking it carefully so as to prevent the access of diptera or burying it immediately beneath the surface of well-tilled soil with a view to the production of crops. We pity the horse "turned out" in a paddock when we see it tormented with "flies." Few of us pause to think that if the horse-dung had been collected daily and put to more profitable use instead of being allowed to lie about and generate a plague of flies the animal might have been happier and the dung might have been more valuable for fertilising purposes. When flies breed in dung-heaps the larvae eat the dung and leave the straw. If each fly needs one grain only of sustenance then the 25,000,000 which I have stated as the possible season's progeny of a female house-fly will be capable of robbing a farmer

of 25,000,000 grains of fertilising material which at 7000 grains to the pound works out at 3571 pounds, or considerably more than one and a half tons. It is bad economy to have your scavenging done by flies and sad to see your potential wealth make to itself wings and fly away. In my garden at Andover where human excreta have undergone daily superficial burial for about 18 years there is no excess of flies and I have come to the conclusion that an essential part of garden management is the daily collection of all garden offal, such as dead leaves, fallen and rotten fruit, &c., and either superficially burying or stacking it so that it shall not serve as a breeding-ground for insects which often prey upon the plums and peaches in the autumn.

In the management of refuse I am no advocate for the use of chemical disinfectants. These are expensive, generally evil-smelling, often poisonous and lead to an increase of material to be transported. The soil is quite capable, with proper management, of turning all organic refuse into "soil"—a fact which the experiments of Sir Seymour Haden and myself have abundantly proved. Our experiments have also shown that from the point of view of the innocuous transformation of organic refuse into "soil" deep burial is a mistake. This is true alike of dead animals and of excreta. We are happily hearing less of the pollution of the earth and of the growth of microbes and toxins in the soil and even from the laboratories of bacteriologists we are learning that the soil is our best friend. The use of quick-lime in the treatment of excreta is, I believe, quite unnecessary. My experiments in burying small animals tend to show that the quick-lime preserves the body and mischievously prevents the beneficent action of the soil. In the management of refuse there must be no slovenly "dumping." What is wanted is proper sorting at the time of collection, great attention to detail, absolute neatness, and an appreciation of the ends to be attained.

In recommending the immediate collection of all organic refuse and its instant covering with earth I am making no new recommendation. Moses had had experience of a "plague of flies" in Africa and was no novice in the matter of camp-management. He found it necessary to be most explicit in his directions for the treatment of excreta. These directions are given in Deuteronomy xxiii., 12-14, and I find that in the revised version of the English Bible there is an interesting change in the passage. The old version runs thus :

Thou shalt have a place also without the camp, whither thou shalt go forth abroad :

And thou shalt have a paddle upon the weapon ; and it shall be, when thou wilt ease thyself [sittest down] abroad, thou shalt dig therewith, and cover that which cometh from thee :

For the Lord thy God walketh in the midst of thy camp, to deliver thee, and to give up thine enemies before thee ; therefore shall thy camp be holy : that he see no unclean thing in thee [nakedness of anything], and turn away from thee.

The new version says (verse 13) : "Thou shalt have a paddle *among* thy weapons," and as a variant for paddle gives "shovel" in the margin. The passage, therefore, means that a shovel for burying excreta immediately is a necessary implement in every camp.—*Lancet*, May 18, 1901.

COMMON SENSE IN MEDICINE.

An Address delivered before the Homœopathic Medical Society of the State of Maryland.

BY EDWARD R. SNADER, M.D., PHILADELPHIA, PA.

In some inscrutable way there prevails in the medical, as well as lay mind, the idea that medicine is of mysterious, nay, even Divine origin. It is impossible to analyze the source of this tacitly-received impression; but the fact remains patent that a certain inexplicable reverence attaches itself to the dominant views and sentiments prevailing in medical minds towards ideas advanced and promulgated by men who have been great in medicine. Indeed, when the dicta of the leading lights of medicine, particularly the ancient ones, are brought under suspicion, one feels almost as if he were committing sacrilege. There prevails to-day no more erroneous view than this cloudy and nebulous conception. True progress will only be made when the idea that we are treading upon sacred ground when we question the truth and wisdom of the aphoristic dicta of leading lights in medicine shall be utterly abandoned. Let us turn on the electric flash-light of common sense, and accept the very patent fact that *medicine and all its procedures for the cure and amelioration of disease are pre-eminently and solely of human origin*. This conception vastly increases our dignity as doctors, and still more vastly increases our responsibility. Let us forego the dignity, and bare our backs to the burden of the enormous responsibility. If medicine and its methods are of human origin, you and I have as much right to an opinion as the most favored son of Æsculapius. But we must accept this responsibility with a full knowledge of its awful significance. Again, if medicine is of human origin, we can actually save life, by virtue of our judgment and the brains our heavenly Father has dowered us with. Yes, we can actually save life, and, woe is me, sacrifice it, to worn-out theories and misconception of the power of the therapeutic means at our command. We have heard much of the healing power of nature. Yes, but we must guide that healing power in the proper direction, and this we cannot do without the proper exercise of supreme common sense. There never existed a medical Mount Sinai from which has been thundered forth a series of immutable commands that medical men must follow. Medicine has been born of human thought, human endeavor, human sacrifice, human bravery, and we as doctors are members of the noblest profession on earth, for to our keeping has been committed the temples in which dwell human souls. We are high priests at the altar of the holy of holies, the human body, wherein God has housed his own image. But this high priest function is ordered by no sacred ritual; we are free to act with the brains we were born with. Let each one of us realize, then, that he must, in the interest of his great calling, be a ruthless iconoclast of all preconceived opinions if they do not correspond to the dictates of common sense. We must throw overboard the most cherished beliefs if they are not endorsed by supreme common sense. We must entertain no belief for the sake of

entertaining it, or because we love the belief, or because it was taught us at our medical mother's knee.

If, then, medicine is not of Divine origin, and is made by humans, it must be subject to all the possible errors to which things human are liable. Medicine as a science has made errors. Her path of progress is strewn with the wrecks of exploded theories. This being true, the utmost caution in receiving anything new is enjoined upon us by common sense. If all medical knowledge is human, we can, by virtue of the right of free thought, place our lance in a medical foe in a knightly battle for the truth. But we must fight for truth as we understand it, and not merely for the purpose of defending a tenet because it has been held by us so long that it seems an integral part of us. It is common sense to know that all truth is only relative. Truths so cross and intercross in the various problems that face medicine that what is truth to-day may not be truth to-morrow. Only the great fundamentals hold their own, and fundamentals may be modified by an equally great fundamental. We can, then, without shame or fear of reproach, question all theories, all dicta, in medicine, for we are responsible to no worthy, ancient or modern, for the case of the sick placed in our charge, but only to our own consciences and to God. It is the supremest common sense, therefore, not to adhere to ideas the usefulness of which time has demonstrated to have passed away. It is a crime to fail to receive the effulgent light of new discoveries. The hoary and fossiliferous theories that dominated medicine in its adolescent period must give way to the new-born ideas of the vigorous-blooded heroes of the shadowy end of the nineteenth century.

Have you ever, when bowing the knee in the secrecy of your thought-chamber to common sense, asked yourselves why you resorted to certain therapeutic procedures? asked yourselves why you gave certain medicines to a certain case? Have you not, in an apparently common-sense way, begged the question, and said, "*Why, to cure, of course?*" But have you gone no deeper than that? Have you asked yourselves how and by what means a cure can be wrought? Have you asked yourselves upon what, *essentially*, must all drug action depend? If not, you are poorly panoplied to battle with disease. Has it not occurred to you that drugs, that all therapeutic actions, must depend upon some central principle? Perhaps in your cogitations you have temporarily lost sight of the fact of the existence of the ultimate anatomical element, the cell, the foundational element.

All therapeutic measures of any description whatsoever, called by whatever name you please, are dependent for their action, for good or ill, *upon their power to influence the function of the cell*. Analysis will show this proposition to be the quintessence of common sense. If this self-evident proposition be accepted, it follows that, in the very nature of things, there are many ways in which the function of cells can be altered. No one here, I am sure, will tell me that I cannot modify the cells composing the end of my finger in a hundred ways—by heat, by light, by cold, by water, by drugs, by electricity, by the knife, by pressure, by relaxation, by muscular

movement. If this be true of the cells of the end of my finger, it is equally true of every individual cell and of every aggregation of cells in my body. Is it common sense for us, as homœopaths, to wrap ourselves up in the mantle of Pharisaic superiority, because of our possession of the wonderful law of cell modification known as *similia*, and deny that there are other methods of altering cell function? Should we not rather take the position of wishing the whole world to know its marvelous efficacy? Should we not also desire to know every possible way of modifying cell function that has ever been taught, or that will be taught in the future? Is it not our bounden duty to our patients, to ourselves, to the glorious science of medicine, to know all that is knowable in every school, in every system? Are there not times when we use other methods of modifying cell function than the homœopathic one? Do we not, every day of our lives, modify cell function by other means than *similia*? If so, why not get down off the throne and admit that the subject ideas are capable of wonderful service in behalf of humanity? Is not this an argument in favour of the most catholic education in our colleges? Let us have all there is in medicine, and let the individual, who is responsible to no human being save himself, and next to his Maker, the wisdom of choosing the best method in a given case to alter cell function. You say, Why, we do teach medicine in all its branches. I admit that that is true; but you apologize for it, because you are in possession of one of the greatest secrets of healing in the gift of nature to give—*similia*. I myself believe in the most liberal education possible. Teach all there is in medicine, whatever its name, and teach the king of therapeutic laws, too, and fear not that that law will be overthrown. If it cannot stand its own ground, it had better fall. But you and I—for we have seen the beneficent action in the suffering—know that homœopathy would only come out of the contest with shining splendor and glory.

The fact that all therapeutic measures depend for their efficacy upon their ability to modify cell function brings me to the consideration of a dictum, framed by the illustrious founder of our school, that will not bear the glare of a common-sense view, and that is his assertion that "the totality of the symptoms constitutes the sole guide to the choice of a remedy." The simple fact that cell function can be altered in various ways at once shows the illogicalness of this dictum. I grant you that, at the time it was enunciated, this proposition was the quintessence of wisdom. This formula does not at all impugn the truth of the law of *similia*, but is simply a rule of application that, at the time of its promulgation, Hahnemann thought was of the greatest importance. Those who believe in the literal truthfulness of this proposition of the Master's, place a rule of procedure above the law that gave rise to it, and this is not common sense. The law is supreme, even if the method of applying it is imperfect. At the time Hahnemann uttered this rule, it must be remembered that modern pathology had hardly been conceived, was certainly not born, and was a most heterogeneous mass of nonsense. In those days it was next to im-

possible to differentiate pleurodynia, pleurisy, pneumonia, intercostal neuralgia, phthisis, bronchitis. Think of bleeding a case of intercostal neuralgia, of purging phthisis, of hammering away at a bronchitis with remedies suitable for a pneumonia ! Is it any wonder that Hahnemann, in his commonsense, decided that the totality of the symptoms was the sole guide in the choice of a remedy ? That proposition, at the time, was like a ray of light across darkened and tempestuous waters, showing a haven to a shipwrecked crew, and, in those days, it was a safe way to apply the law *similia*. But in these modern days, homœopathy is unjustly robbed of the glory due to her by a too strict and absolute method of applying the law of *similia*. Symptoms alone do not betray all there is in a remedy, and there is infinitely more power in a drug than is shown in its schema of symptoms. With our modern method of making the drug correspond to the pathology of the case we are extending the usefulness of the law, and we see that most of the definite so-called physiological drug actions are exquisite examples of *similia*. The acceptance of this dictum led indirectly to the teaching of a natural corollary, namely, that the diagnosis of the disease was a matter of indifference, so long as the totality of the symptoms of the case was obtained and the corresponding drug was given.

While I take off my cap to Father Hahnemann for his wonderful discovery and devotion to science, I cannot help but feel he was napping when he let that corollary get into his work. If the proposition that all medicinal action is dependent upon the ability to modify cell action is true, it follows that we must diagnose our cases, in order that we can tell what kind of cell modification we want. We must diagnose the case, and that gives us the key to the pathology, and the pathology tells us what kind of morbid cell action is taking place. Then and then only are we prepared to say whether a given case wants homœopathic treatment, surgical treatment, electrical, dietetic, hygienic, chemical or what not. When we have diagnosed the case we will know what kind of cell function we want to alter, so as to bring back health ; or, if that is impossible, make the sufferer more comfortable. It is not possible to always diagnose the exact particular disease to which a group of symptoms you are considering belongs, simply for the purpose of giving a name to the malady ; but it is possible to *diagnose the condition*, and that, possibly, is the higher diagnosis. It is an easy thing to discover a valvular disease of the heart. It is a difficult thing to tell whether that heart is competent to perform its functions, despite its defects. This is the higher diagnosis. But this illuminating diagnosis is not possible to those who do not know how to diagnose disease in general, and rely upon their selected remedy to perform the miracle of removing all the symptoms independently of their nature, origin or pathology. Such prescribing is working in the dark with a vengeance, is limiting the field of usefulness of *similia*, kills diagnosis, pathology, clinical experience, hygiene, rational prognosis, and gives a false sense of security to the prescriber, or makes him appear like a clown with bells when his medicine fails. With a rational diagnosis as the basis of his prescription,

he will know that it is beyond the pale of common sense to demand of the law similia that it cure incurable cases. He is virtually damning his own beneficent law when he asks his drug, prescribed symptomatically, to do what the Divine Maker of that law never intended should occur. There are miracles enough possible to medicine without demanding of it that it shall cure everything simply because the symptoms correspond to a certain drug. The wheels of progress in medicine will be held by such methods. The prescribing according to the totality of the symptoms is but one way of modifying cell action. To pursue it exclusively means a dearth of therapeutic measures. A drug should be known in all its capabilities, whether chemical, so-called physiological, according to similia symptomatically and according to similia pathogenetically. We should be able to cut with the point, the back, or either edge of the therapeutic sword; and the hilt of that sword should be able to take in the kid-gloved, dainty hand of the drug knight or the huge paw of the Viking in medicine. We, as homœopaths, owe this development of drugs in their entirety to humanity.

Hahnemann enunciated a truth that, it seems to me, will never be swept away by any progress possible to medicine. He taught that the smallest curative dose should be given. That proposition bursts with its weight of common sense. But there is some dispute among us as to the smallest curative dose. The truth of the potency question is still under discussion; but there ought not to be the slightest difficulty about the application of this rule. The smallest curative dose may be of such a high dilution as to make the stars dizzy in its upward flight, or it may be two barrels of the fluid extract. The law is not affected by such variations. Every drug, it is common sense to conceive, is a law unto itself, as to its powers in crudeness or dilution, and no general rule applies. Another point ought to be taken into consideration here, too, and that is that every patient is a law unto himself in regard to the drugs that affect him. He may be able to take twenty drops of the tincture of *nux vomica* at a dose with benefit, and yet one drop of *belladonna* may produce aggravation. It would not be common sense, however, to refuse to give his next-door neighbour five drops of *belladonna* for fear of doing him harm. In other words, we must not base a rule of action on exceptions. The question of dose in a given case will always be a matter to be decided by the reaction of the patient to the medicine, and not by arbitrary preconceived rules. There will never be a time, therefore, in the history of medicine, when patients will not show idiosyncracies to drugs; there will never be a time when it will not require exquisite judgment to adapt the dose to the man. You cannot settle a matter of this kind by the microscope. They tried that down in the cultured Hub, and sent forth the dictum that, because they could discover no physical evidence of the existence of medicinal substance in any potency beyond the sixth, therefore there existed no medicinal power. The position was a wrong one. It established the microscope as the arbiter of the question. The common sense verdict should have been:

"There is no medicinal virtue here, so far as it is in the power of the microscope to discover." A more powerful instrument might have shown different results ; but whether it did or not is really a matter of the profoundest indifference to practical medicine. The *only arbiter of the efficacy of any drug, of any medical measure, of any therapeutic procedure is the court of clinical experience.* The only jurors, competent to sit in this Court of Clinical Experience are men who are thoroughly educated clinicians, men who are saturated with medical knowledge and instinct from the crowns of their heads to the soles of their feet, who are steady-headed and brave-souled, and who love nothing so well as truth. The chameleon mentalities of medicine, the men who are too enthusiastic, the men who are narrow-minded, the men who have theories to prove, are not competent to act as jurors in this court of final appeal. Before this tribunal, sooner or later, must appear every theory and procedure in medicine, and in many cases the Scotch verdict of not proven, or guilty, or not guilty, will be rendered. The wish of every honest man is, let truth prevail.

There is another proposition of Hahnemann's that time and future investigations can never overthrow, and that is his dictum that every case must be individualized. To every clinician this is an everyday truth. No matter what the disease, when it attacks a man that malady is modified by the man it attacks, and it is the patient who is to be treated, and not the disease ; for who has not seen pneumonias that were no more than a sore toe to the individual, and who has not seen patients with pneumonia, who at the first glance has not said this case will end fatally ? Bronchitis is a simple disease to most people ; but to some persons, owing to constitution or accompanying disease, it is as dangerous as double pneumonia and typhoid fever combined. The patient will always be the acme of therapeutic endeavor. If this proposition be true, it is common sense to know that this hunting after specifics for diseases is a delusion and a snare. There never can be a specific for a disease. We are wasting valuable time in such a search. We will find specifics for conditions, but not for named diseases. Finding the conditions present in the patient we need not care whether the disease be diphtheria, typhoid fever, septicæmia, or what not. This self-evident truth has led many to ignore nice diagnosis ; but that is a mistake, for refinement in diagnosis will lead to discovery of new conditions, and hence new specifics, and our therapeutic armamentarium will become more powerful, and we will then be able to cure some diseases that we now regard as incurable.

This brings me to a new phase for the exercise of common sense in the practice of medicine. How many of us are startled at the appearance in a case under our care of some so-called pathognomonic sign of grave or necessarily fatal disease ? We sometimes lose heart, and give up all hope of effecting a cure. There is entirely too much pessimism in medicine today in regard to quite a number of maladies that are essentially organic in their nature. For instance, there is the group of diseases we know

generically as Bright's. There was a time when, if I discovered a few tube casts under a microscope, I could hear angel wings rustle ; but that time has gone by, for I have seen patients live many years whose urine constantly showed casts. True, casts are significant, but there are other urinary factors that are of graver import still. To gain a more practical idea of these so-called diagnostic factors in Bright's I one summer made urinary analyses of all my patients, independently of the nature of their maladies, and found casts in ninety per cent. of the cases. Did they all have Bright's disease ? I trow not ! and yet it is not impossible that the disease may have existed in a slight degree, but not sufficient, in most cases at least, to produce *kidney-incompetence*. If we accept casts as indubitable evidence of the existence of Bright's disease, we would be lacking in common sense if, from the presence of a few casts alone, we decided at once upon the *gravity* of the lesion. We do not understand all about casts yet, and it is a fatal blunder to base deductions upon false premises, and virtually assume that our knowledge in these matters is final and complete. Even now the position I take is that by casts alone, admitting for argument's sake that they are positively diagnostic of a kidney lesion, I may know of the existence of the disease, *but not of its extent*, nor of its *power to seriously compromise the health of the possessor of the casts*. Just here, too, let me say that Bright's can sometimes be more successfully diagnosed clinically than by the use of the microscope, although I would not like to do without its aid in many instances. Several times I have diagnosed Bright's in persons whom the urinary analysis showed to have perfect kidneys, and yet the post-mortem betrayed only too plainly the cause of death to have been uræmia.

So, the discovery of the tubercle bacilli in a single specimen of sputum is not positive evidence of the existence of pulmonary tuberculosis. It is only one sign, sometimes absent, and never pathognomonic.

There are some points, too, about the bacteriological diagnosis of diphtheria that leave much to be desired. Personally, I can only diagnose the disease by taking into consideration all the factors in the case. Certainly, the microscopic growth has been discovered in throats that were not clinically diphtheritic, and has not been found at all in cases that were pre-eminently and fatally diphtheritic. Besides, one of our throat men found the bacillus in about fifty-five per cent. of cases that appeared in a dispensary for treatment for ordinary troubles of the nasopharynx, and who showed no signs whatever of diphtheritic infection.

There are numberless other instances that could be quoted *ad libitum*, to show that it is common sense to believe that there are no absolutely pathognomonic signs in medicine, and that success in diagnosis is dependent upon the ability to grasp *all the phenomena present and weave them into a consistent and logical whole*. This makes our work the harder ; but our science demands it, our patients demand it, our skill as therapists is enhanced by it.

We can never afford to be careless in diagnosis, for real advances in

therapeutics cannot be made without clinical experience, and clinical experience must often revise her conclusions because of faulty diagnoses.

There is a duty we owe the public, and a sacred one at that, and that is not to incorporate into law any theory or procedure in medicine until its utility is established beyond peradventure. As an instance of the warping of public sense by the medical profession, let me mention the fact that in some communities the use of antitoxin in diphtheria is rendered compulsory. Such laws are utterly opposed to common sense, and are a danger to the community, for they rob the physician of his independence in thought and action, and compel the use of a medication whose utility has not demonstrated its usefulness to the major portion of the profession. Whatever robs the individual physician of his right to use his judgment in a case of disease practically renders him incompetent to enter the sick-room, for every case of illness must be individualized as to what shall be done for it, and it might be the worst possible thing for that case to give the law-prescribed remedy. Again, I aver there are no such things as specifics for diseases, for from year to year maladies change in their essential nature and mildness and fatality, although the group of symptoms called the disease still receives the same name. Any man who knows anything whatever of practical medicine knows that there is such a thing as the epidemic remedy, and that where he has obtained signal success with a certain medicine during the prevalence of a given epidemic, that remedy in subsequent epidemics has been as useless in the control of the symptoms of the disease as so much filtered water. The name of the disease was the same, the name of the medicine was the same, but the disease was not the same.

There are numberless instances, too, where health-laws work great harm to the individual, and do not adequately protect the community. The law compelling vaccination before a child is permitted to enter the public schools often works wrong to subjects unfitted for vaccination. In the absence of a malignant epidemic the family physician should be the arbiter of the question of vaccination or no vaccination, rather than the cold and indiscriminating law, which, by the very brutality of its wording, has arbitrarily declared that vaccination is harmless. It is not harmless. At best, it is the lesser of two evils; that is all. In a recent scare in my city we had, I believe, about six cases of smallpox, all isolated in the Municipal Hospital. The disease had attacked the vaccinated and unvaccinated alike. There was a great furore to become vaccinated at once. In most of my families I absolutely refused to pander to the scare by vaccinating. The last three or four epidemics of smallpox have been so mild that Dr. Welsh found it difficult to keep the patients in bed more than one or two days at most. To the more intelligent of my patients I gave this reason for my refusal to vaccinate. I said, "We have nearly a million population and six cases of smallpox, and the chances of your children catching the disease are even less than six chances in a million, for those six cases are isolated." Now, it seems reasonable to suppose that if you vaccinate, say, nearly two hundred thousand persons, suitable and unsuitable, as a preven-

tive measure, you would have more deaths, directly and indirectly, as the result of that procedure, than if you had had twenty cases of smallpox, all ending fatally. Vaccination is deemed so harmless that no attention is given to the general health of an apparently healthy applicant for vaccination. Here the basis of the law, which is supposedly the greatest good for the greatest number, would certainly be violated.

There is another field directly connected with medicine where it is imperatively demanded of the medical profession that common sense be exercised, and that is in our relations to the pharmacists. They must furnish us with drugs of standardized strength, and the old plan of selecting a plant because it has all the appearances of being a good one, and all the odor, and all the general physical properties of the drug, must be abandoned. We must weed out the inert or almost inert drugs. We must not be allowed to discover their inertness first in the sick-room, as we are often compelled to do nowadays. It is not a question of cost, for our drug weapons must be reliable. Either chemistry or proving must discover for us the virtue of the medicament. This is no hardship to the honest pharmacist, and him only do we expect to reach, for the other kind, who dispenses patent medicines over the counter, ought to be outlawed to protect the public. The time has gone by when we should accept any but the most positive scientific evidence of the existence of drug potency. Nature is not alike all years. She sometimes produces imitations. We must discover them before they become weapons in the sick-room.

The wonderful advances made by specialism in medicine in the last two decades is one of the greatest glories of the profession. There is a possible danger, however, that specialism will be carried too far, and we must use our common sense to prevent disaster from following where only good should come. Specialism has developed along special lines; but we must not let the part dominate the whole, for the specialism that does not recognize that it is but simply the handmaid of general medicine is bound to wreck itself by its own folly. Man is a congeries of organs, and every organ is dependent and interdependent upon the action of the other, and the whole man must be recognized by any specialty worthy the name. We do not want a throat man hammering away at a mild nasal catarrh while the man's heart is dilating. We do not want an eye man to believe that every disease under the sun results from eye strain. We do not want a gynecologist to treat a mild cervical catarrh heroically, as if it were the whole disease picture, when the patient has a Bright's. In other words, common sense demands that, whether specialist or general practitioner, he shall be a doctor all over, and from the ground up and from the head down. The general practitioner must be more of a specialist, and the specialist more of a general practitioner. We must learn to keep our hands off as well as to put them on. Our surgeons—God bless them! for they need it—must learn to be better doctors, and our general practitioners must learn to be that greatest kind of surgeon, according to Senn, a doctor who knows when and how to cut.

Our lay friends need not be entirely idle in the good work of aiding the medical profession. They, too, can exercise that supreme gift of common sense in ways that will be effective. For instance, they demand that their doctor shall have had a good general education, have studied a year with a preceptor, attended college four or five years, had a year or two as resident physician in a hospital, and passed a State Medical Board of Examiners, and, if he is a real good fellow and you would like to see him get along, after he has had his sheepskin for ten years you will let him prescribe for one of your servants; and yet some of you will take medicine, and pay a good round sum for it, too, from some butcher or baker or candlestickmaker who thinks he knows what is good for sick people, and who advertises it—a thing you would abominate and would not tolerate in your own doctor, for you prefer that he allow you to praise him, and do not like him to waste his talents trying to blow his own horn.

It is not common sense to demand so much education from the doctor, and the expenditure of much time and money, and at the same time allow any Tom, Dick or Harry to place any sort of secret compound on the market without let or hindrance, and without the expenditure of a soumarque to secure the necessary qualifications. Quackery disregards the essential principle of the successful use of drugs, the individualization of the case.

The laity, too, need not be too brave in forming anti-vivisection societies for a true investigator is ever humane, and many animals that are experimented upon are placed under the influence of an anæsthetic, and they frequently get up from the experimenter's table and gambol around in play. Even were this not so, we will assume that it is common sense to conclude that the lives of the lower animals are not as precious to them as they are to us, when they teach us great truths in anatomy and physiology, in inoculability to disease, in susceptibility to drug action, and in cerebral localization. Most of the marvellous advances that have been made in abdominal and cerebral surgery have been preceded by experimental studies on the lower animals. Thousands of precious human lives have been saved to their loving ones by this study. The abdominal cavity and the cavity of the brain were once the sacred ground that no air dared reach else death stalked in. We have demonstrated that this was incorrect reasoning, and humanity has been the gainer and the animal ennobled by furnishing the key that unlocked that knowledge that made this possible.

We have said much about common sense to-night, and might say more, but the very acme of common sense is the conception that human health is often in your keeping, and that by the exercise of the powers your Maker has given you you can often save life, can many times prolong it, and can always ameliorate and deaden inevitable suffering, and a calling holier than this no man need want. You should feel the dignity and the enormous responsibility of your position and press on to new conquests. You can hold grim death at bay, but he will finally conquer; not only your patients, but you yourselves will taste of that bitter sweetness that

comes to all. When the end comes, approach the final plunge without fear. He who has painted the lily, put perfume on the violet, swung the gleaming stars in space, and let His sun shine on the evil as well as on the good, will surely give us a welcome to a brighter world than this.—*The Hahnemannian Monthly*, May 1901.

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THE PLAGUE IN ATHENS AS DESCRIBED BY
THUCYDIDES ; WAS IT PLAGUE AS
NOW UNDERSTOOD ?

I.

THE ORIGINAL MEANING OF THE WORD PLAGUE, if derived from the Greek Πληγή (plegḗ) is a blow, shock, cut, thrust, injury,—hence a misfortune or calamity. In Latin the word *plague* has the same signification in particular cases, but ordinarily means a pestilence, affliction, destruction. The ordinary or secondary meanings of the word are evidently derived from the original or primary meanings. Any great natural evil or calamity was denoted by the word. In the Hebrew Scriptures we have plague of frogs, of lice, of hail, of locusts, of boils, &c. Hence the special secondary use of the word to signify a disease of unusual virulence and mortality is probably as old as the word itself. But its definite application to signify a particular, specific disease is of recent origin.

Hence the difficulty in assigning the epidemics that prevailed in ancient times and passed by the name of plague or pestilence, to their nosology, is exceedingly great, almost insuperable, especially where the symptoms of the diseases are but imperfectly given. It is generally admitted that in the case of the

epidemic that prevailed in Athens during the second Peloponnesian war, we have a clear, graphic and full description of the course and symptoms and sequelæ of the disease by a man who had himself suffered from it, who had carefully watched the cases of others, and whose honesty and truthfulness as a historian is unrivalled even in the present day. So of this epidemic, if of any of ancient time, it is possible to discover the true nature and place in nosology, and its similarity if any with any epidemic that has occurred since. The plague in Athens, as Thucydides has called it, is described in Book II of his history of the Peloponnesian War from sections 47 to 52.

In section 47 we have the date of the first occurrence of the epidemic, which is the second year of the Peloponnesian war being the third year of the 87th Olympiad (or B. C. 430), and a general description of extreme severity, thus: "They (the Peloponnesian army) had not been there (in Attica) many days when the plague broke out in Athens for the first time. A similar disorder is said to have smitten many places, particularly Lemnos, but there is no record of such a pestilence occurring elsewhere or of so great a destruction of human life. For a while physicians in ignorance of the nature of the disease, sought to apply remedies; but it was in vain, and they themselves were among the first victims, because they came in contact with it. No human art was of any avail, and as to supplications in temples, enquiries of oracles, and the like, they were utterly useless, and at last men were overpowered by the calamity and gave them all up."

In the next section the historian tells us where it was supposed the disease had originated, to what other places it had thence spread. "The disease is said to have begun south of Egypt in Aethiopia, thence it descended into Egypt, and after spreading over the greater part of the Persian empire, suddenly fell upon Athens. It first attacked the inhabitants of the Piræus, and it was supposed that the Peloponnesians had poisoned the cisterns, no conduits having as yet been made there. It afterwards reached the upper city, and then the mortality became far greater." He leaves others, physicians or not, to speculate about "its probable origin or the causes which might or could have produced such a disturbance of nature." He contents himself with describing "its actual course, and the symptoms by which any one

who knows them beforehand may recognise the disorder should it ever reappear." And he tells us that he himself was attacked by it, and had witnessed the sufferings of others; which is as much as to say that his narrative of the disease will be a true and faithful one, and that it really was a remarkably full and lucid description will appear from section 49 which we reproduce entire :

"The season was admitted to have been remarkably free from ordinary sickness; and if any body was already ill of any other disease, it was absorbed in this. Many who were in perfect health, all in a moment, and without any apparent reason, were seized with violent heats in the head and with redness and inflammation of the eyes. Internally the throat and tongue were quickly suffused with blood, and the breath became unnatural and fœtid. There followed sneezing and hoarseness; in a short time the disorder, accompanied by a violent cough, reached the chest; then fastening lower down, it would move the stomach and bring on all the vomits of bile to which physicians have given names; and they were very distressing. An ineffectual retching producing violent convulsions attacked most of the sufferers; some as soon as the previous symptoms had abated, others not until long afterwards. The body externally was not so very hot to the touch, nor yet pale; it was of a livid color inclining to red, and breaking out in pustules and ulcers. But the internal fever was intense; the sufferers could not bear to have on them even the finest linen garment; they insisted on being naked, and there was nothing which they longed for more eagerly than to throw themselves into cold water. And many of those who had no one to look after them actually plunged into the cisterns, for they were tormented by unceasing thirst, which was not in the least assuaged whether they drank little or much. They could not sleep; a restlessness which was intolerable never left them. While the disease was at its height the body, instead of wasting away, held out amid these sufferings in a marvellous manner, and either they died on the seventh or ninth day, not of weakness, for their strength was not exhausted, but of internal fever, which was the end of most; or, if they survived, then the disease descended into the bowels and there produced violent ulceration; severe diarrhœa at the same time set in, and at a later stage caused exhaustion, which finally with few exceptions

carried them off. For the disorder which had originally settled in the head passed gradually through the body, and, if a person got over the worst, would often seize the extremities and leave its mark, attacking the privy parts and the fingers and the toes; and some escaped with the loss of these, some with the loss of their eyes. Some again had no sooner recovered than they were seized with a forgetfulness of all things and knew neither themselves nor their friends."

In the next section (§50) after speaking of the disease as terrible beyond description and beyond the endurance of human nature, the author notices a peculiarity "which distinguished it from ordinary diseases." The peculiarity was that "The birds and animals which feed on human flesh, although so many bodies were lying unburied, either never came near them, or died if they touched them. This was proved by a remarkable disappearance of the birds of prey, who were not to be seen either about the bodies or any where else; while in the case of the dogs the fact was even more obvious, because they live with man."

He has thus given what he says "was the general nature of the disease," and has omitted, as he himself says, "many strange peculiarities which characterised individual cases." This was excusable in a man who was not a physician, but unfortunate for his posterity who are thereby deprived of one of the many means of accurately identifying the disease. He goes on to say (§51) that nursing or no nursing, treatment or no treatment had equal effect on the course of the disease. "Some of the sufferers died from want of care, others equally who were receiving the greatest attention. No single remedy could be deemed a specific; for that which did good to one did harm to another." And he makes the remarkable statement, which is nevertheless a correct one, that "no constitution was of itself strong enough to resist or weak enough to escape the attacks."

He then speaks of the "most appalling despondency which seized upon any one who felt himself sickening; for he instantly abandoned his mind to despair, and, instead of holding out, threw away his chance of life." He speaks also of "the appalling rapidity with which men caught the infection, dying like sheep if they attended on one another; and this was the principal cause of mortality." This fact struck terror into the hearts of many

who were therefore afraid to visit one another, and "the sufferers died in their solitude, so that many houses were empty because there had been no one left to take care of the sick." He bears testimony to the goodness and heroism of others, "who went to see their friends without thought of themselves and were ashamed to leave them, even at a time when the very relations of the dying were at last growing weary and ceased to make lamentations, overwhelmed by the vastness of the calamity." But these good men perished in their efforts of philanthropy.

That Thucydides was a keen and careful observer is evident from his having noticed a characteristic fact in connection with the disease which is of the greatest importance, in as much as it affords some clue to its identification. This fact was the immunity which one attack conferred on the individual from a second attack or at least from its virulence. "But," says he after mentioning the heroism of some in attending the sick, "whatever instances there may have been of such devotion, more often the sick and the dying were tended by the pitying care of those who had recovered, because they knew the course of the disease and were themselves free from apprehension. For no one was ever attacked a second time, or not with a fatal result. All men congratulated them, and they themselves, in the excess of their joy at the moment, had an innocent fancy that they could not die of any other sickness."

The historian has noticed last of all the aggravating effects of overcrowding and the moral depravity that was the result of the very violence of the epidemic. "The crowding of the people out of the country into the city aggravated the misery; and the newly-arrived suffered most. For, having no houses of their own but inhabiting in the height of summer stifling huts, the mortality among them was dreadful, and they perished in wild disorder. The dead lay as they had died, one upon another, while others hardly alive wallowed in the streets and crawled about every fountain craving for water. The temples in which they lodged were full of the corpses of those who died in them; for the violence of the calamity was such that men, not knowing where to turn, grew reckless of all law, human and divine. The customs which had hitherto been observed at funerals were universally violated, and they buried their dead each one as best he

could. Many, having no proper appliances because the deaths in their household had been so frequent, made no scruple of using the burial place of others. When one man had raised a funeral pile, others would come, and throwing on their dead first, set fire to it; or when some other corpse was already burning, before they could be stopped would throw their own dead upon it and depart.

"There were other and worse forms of lawlessness which the plague introduced at Athens. Men who had hitherto concealed their indulgence in pleasure now grew bolder. For, seeing the sudden change,—how the rich died in a moment, and those who had nothing immediately inherited their property,—they reflected that life and riches were alike transitory, and they resolved to enjoy themselves while they could, and to think only of pleasure. Who would be willing to sacrifice himself to the law of honour when he knew not whether he would ever live to be held in honour? The pleasure of the moment and any sort of thing which conduced to it took the place both of honour and of expediency. No fear of God or law of man deterred a criminal. Those who saw all perishing alike, thought that the worship or neglect of the Gods made no difference. For offences against human law no punishment was to be feared; no one would live long enough to be called to account. Already a far heavier sentence had been passed and was hanging over a man's head; before that fell why should he not take a little pleasure?"

The historian gives facts to show that the plague was carried to distant parts by the infected. An expedition under the command of Hagnon and Cleopompus was sent against Potidaea but it failed, "for thither too the plague came and made dreadful havoc among the Athenian troops. Even the soldiers who were previously there and had been in good health caught the infection from the forces under Hagnon. But the army of Phormio escaped; for he and his sixteen hundred troops had left Chalcidicæ. And so Hagnon returned with his fleet to Athens, having lost by the plague out of four thousand hoplites, a thousand and fifty men in forty days."

After continuing in full force for two years there was some abatement of the plague for a time. But after that there was recrudescence. "It continued on this second occasion not

than a year, having previously lasted for two years. To the power of the Athenians certainly nothing was more ruinous; not less than four thousand four hundred Athenian hoplites who were on the roll died, and also three hundred horse men, and an incalculable number of the common people." We are told that "this too was the time when the frequent earthquakes occurred at Athens, in Euboea, and in Boeotia, especially at Orchomenos."

There was this remarkable fact noted by the historian, namely, that though "the disease certainly did set in immediately after the invasion of the Peloponnesians it did not spread into Peloponnesus in any degree worth speaking of, while Athens felt its ravages most severely, and near to Athens the places which were most populous." The reason why Peloponnesus did not suffer much from the plague was perhaps because the invading army, inspired by fear of the disease, left Attica sooner than they had intended, having been there this time only forty days, and thus avoided catching the full infection. It would have been well if the historian had given us the names of the most populous places which suffered like Athens and the extent of their suffering. This would have enabled us to judge whether contiguity to Athens was a factor in the spread of the disease to those places, or whether the disease had come to them as it had come to Athens.

Such was the history of the plague at Athens as narrated by Thucydides. An analysis of the narrative brings out the following points in regard to the disease :

1. The disease did not originate in Athens; it was brought from without. It was an imported disease. It was probably brought in by trading or merchant vessels, as it first occurred in the Piræus on the sea-coast.

2. So far as the historian could trace it, it originated in Aethiopia, whence it travelled into Egypt, and thence probably by the trade-routes into Persia, whence it spread to some of the islands of the Grecian archipelago, notably Lemnos, and then to Athens where it vent its full fury.

3. It was an epidemic disease of unusual virulence, exceedingly contagious and infectious. It was an eruptive disease, pustules and ulcers breaking out on the skin in its course.

4. It was a very fatal disease, attended with dreadful mortality and was scarcely influenced by any treatment then known. The

physicians were quite at a loss what to do with it. A remedy which appeared to do good to one patient did harm to another.

5. It was a disease the first attack of which conferred upon the survivor immunity from the chance of a second attack, and if a second attack did rarely take place it was a mild one.

6. Over-crowding aggravated the malignancy of the disease, which explains the unusual mortality within the walls of the city, especially of the new comers, and the singular comparative exemption of the invading army.

7. It appeared at a time when the season was most healthy, There was very little of ordinary sickness, and whatever there was, ended in it as if converted into it or absorbed in it. It was so sudden and unexpected in its origin that it was attributed to the poisoning of the Cisterns by the Peloponnesians.

8. Though it first appeared in summer its recrudescence was in winter.

9. Its total duration was three years, or more properly four years and a half, "at first for two years from the spring of 430 to the spring of 428 B.C.; then reappearing after a partial cessation of a year and a half in the winter of 427-426, and continuing a third year," after which in all probability it altogether disappeared.

10. Coincident with the epidemic there were numerous earthquakes in various parts of Greece.

11. It was attended by despondency and moral depravity which are the usual accompaniments of all great epidemics.

12. The beasts and birds of prey which feed on human flesh, instinctively avoided the corpses that lay strewn in the streets, or if they tasted them they died.

In our next we shall discuss whether this plague of Athens had any similarity to other plagues and pestilences that occurred in other parts of the world before or since.

(To be continued.)

TREATMENT OF PNEUMONIA.

In the early days of Homœopathy pneumonia, like cholera, was one of its pioneers. For, whereas under the old school treatment with blood-letting and large and frequent doses of tartar emetic then pursued, the mortality from the disease was from 20 to 30 per cent., under homœopathic treatment it came down so low as 6 per cent. But the laurels of homœopathy were very near being snatched from it by expectancy or the do-nothing system of treatment pursued by Dietl, of Vienna, under the conviction that the homœopathic infinitesimals were either pure sugar of milk or water, and therefore not medicines at all. He treated 85 cases with blood-letting and lost 17, or 20 per cent.; 106 cases with tartar emetic and lost 22 or 20.7 per cent.; 189 cases with no medicine or bleeding and lost 14, or 7.4 per cent., which was very nearly the death-rate under homœopathic treatment. What could be a better proof of the correctness of the suspicion that homœopathic medicines were nothings? But the triumph of expectancy was not to remain long. While admittedly it was infinitely better than the barbarous treatment by blood-letting, blistering, &c., it was shown to be inferior to homœopathy. Dr. Henderson, of Edinburgh, showed "that the average duration of the disease was materially less under homœopathic than under expectant treatment."

It was further found that whereas the first per centages under Dietl were unusually favorable, subsequent trials of expectancy both by him and others gave a percentage, as was shown by Dr. Jousset, so much as 19, while the per centage under homœopathy scarcely rose above 6 and sometimes fell below this.

Dr. Jousset has pointed out "a further proof of the difference between homœopathy and purely expectant medication. Under the latter, as is well known, a sudden defervescence is wont to occur somewhere about the seventh day of the malady, while the physical signs persist for some time longer. Under homœopathic treatment, on the other hand, the fever diminishes gradually and the pulmonary mischief *pari passu* with it, so that after a few days there is little trace left, of either." (Hughes' *Manual of Therapeutics*.) This shows that homœopathic medicines do exert a real control over the disease.

"What, then, are the remedies, with which these favorable results are obtained?" asks Dr. Hughes, and he truly replies—"They are happily as few as they are effective." These are Bryonia, Phosphorus, Iodine, and Tartar emetic. To these we will add in the light of the recent experiments of Dr. Jousset, Calomel or the subchloride of mercury. All these have direct pathogenetic action on the lungs of an inflammatory character, and they have proved to be eminently useful in the disease. There are others such as *Veratrum viride*, *Sanguinaria*, *Chelidonium*, *Kali carbo-*

nicum, Sulphur, Lycopodium, Hepar sulphuris, and last not least, Aconite, which by their symptomatic indications have proved beneficial also. For the indications of all these remedies, absolute and differential, we would refer our readers to the extract we have given from Dr. Dewey's work under our Review.

In the treatment of pneumonia it is important to bear in mind the two varieties of it are commonly met with, the LOBULAR and the LOBAR. The LOBULAR form in its earlier stage begins in isolated groups of air-vesicles, but the inflammatory process in extending may cause coalescence of the isolated lobules, involving larger and larger areas, and thus diffusing all over the lungs in the form of isolated infiltrations, and have been found to progress from behind forwards and below upwards. In the lobular form the inflammation almost invariably advances from the capillary and even larger bronchial tubes, and hence it is also called BRONCHO-PNEUMONIA. Being generally of catarrhal origin it is sometimes called CATARRHAL PNEUMONIA. "According to all observations," says Raue, "its most frequent occurrence is found in the first three years of life, and those of old age," which points to the importance of its diagnosis.

The LOBAR form, according to some authors, is pneumonia *par excellence*. It is called *lobar* because a larger area of the lungs is involved in the inflammatory process from the beginning, whole lobes and not isolated lobules. It is sometimes called *Croupous* because the exudation is fibrinous like that of croup. As a general rule the inferior lobes, especially of the right lung, are first attacked. No age is exempt from it but it is most frequent between twenty and forty. The chief cause, predisposing and exciting, is cold, hence the name catarrhal given to the first variety is etiologically incorrect.

It is important also to bear in mind that whatever the variety there are four stages in each when the course is normal, important from a therapeutic point of view, in as much as a remedy which may be useful in one stage may be absolutely useless and even injurious in another. These stages are: 1. the stage of hyperæmia or engorgement characterized by overfulness of the pulmonary capillaries; 2. the stage of exudation into the pulmonary tissue and into the air-cells and the bronchioles; 3. the stage of coagulation of the exudation leading to consolidation of the area into which exudation has taken place, called also the stage of hepatization, which has been subdivided into red and grey hepatization, the latter being but an advanced state of the former; 4. the stage of resolution, characterized by the liquefaction of the exuded material by a sort of fatty and mucoid degeneration, followed by its reabsorption, and consequent restoration of the lung to its normal condition. If in this stage instead of fatty and mucoid there is purulent degeneration, there

will be purulent infiltration or formation of abscess, and in worst cases there may be gangrene.

In the first stage there is decreased mobility of the affected side of the chest, increased vocal fremitus, percussion hardly altered, if at all a tympanitic sound over the inflamed area is heard. Auscultation may or may not give a crepitant sound. In the second stage the mobility of the affected side is still further decreased. There is manifest dulness over the inflamed area, and the crepitant sound is distinct replacing the normal vesicular murmur. In the third stage there is still further decreased mobility of the chest, vocal fremitus stronger, absolute dulness on percussion, crepitations replaced by tubular breathing, with mucous râles in the bronchial tubes. In the fourth stage the mobility of the chest becomes greater and greater, percussion note less and less dull, till it becomes clear, tubular breathing is replaced by redux crepitations which are larger and moister than those of the second stage, and finally there is return of the normal vesicular breathing.

It will generally be observed that the regular succession of these stages is not simultaneous throughout the area affected. "The changes," as has been remarked by Dr. Green, "advance irregularly, so that whilst one portion of the lung is in the stage of red hepatization, another may be in the grey stage." Indeed different portions of the lung may be in different stages. Such a state of things happens only in irregular cases of the disease, and shows that the constitution of the patient is considerably below average vitality.

REVIEW.

Practical Homœopathic Therapeutics, arranged and compiled by W. A. Dewey, M.D., Professor of Materia Medica at the University of Michigan Homœopathic Medical College, &c., and author of "Essentials of Homœopathic Materia Medica," "Essentials of Homœopathic Therapeutics," &c., &c. Boericke & Tafel, Philadelphia, 1901.

DR. DEWEY is a member of acknowledged eminence in our school. As associate author of *The Twelve Tissue Remedies of Schüssler*, as author of the *Essentials of Homœopathic Materia Medica* and of the *Essentials of Homœopathic Therapeutics*, his reputation as a man of vast reading and as a practical physician with a thorough acquaintance of the homœopathic materia medica, has been established. The present work fully sustains that reputation. It is, however, properly speaking, not quite a new work. It is in reality a revised, improved and enlarged edition of the *Essentials of Homœopathic Therapeutics* with the dialogic form of the latter left out. The author has not exaggerated when he has stated in the Pre-

face that "the periodical literature of our school, as well as the works of all standard authorities, have been carefully examined and the practical points contained therein have been included in this volume." Unlike almost all works of the kind the remedies have been arranged not in alphabetical order, but according to their relative importance, which is marked also by difference of type, and very properly "no attempt has been made to give indications for all the remedies that may be indicated in the various affections," for that would not only have been "but a repetition of what already has been well and faithfully done by our great authors on therapeutics," but exceedingly perplexing to students and practitioners.

It is true that the genius and spirit of homœopathy as a scientific system require a *Pure Materia Medica* and not Therapeutics so-called, yet what the author said in the preface to the second edition of his *Essentials of Homœopathic Therapeutics*, is true of this work, namely: "While its title is *Therapeutics*, it should be looked on by the student simply as *Materia Medica* in another form. If this be done there is little danger of the student falling into the practice of the ancient school of associating remedies with diseases, or diagnosis with treatment."

We give the following long extract with the double object of presenting to our readers a specimen of how well the author has executed the work, and a supplement to our article on the Treatment of Pneumonia, which is very much needed, especially in view of the rude treatment of the disease still adopted by the old school, as will be seen from the report of the two cases of lobar pneumonia under our Clinical Record.

By way of criticism we would notice the omission of such drugs as *Hepar*, *Carbo vegetabilis*, *Rhus toxicodendron*, and *Lachesis*. The omission of *Hepar* and *Lachesis* is remarkable because these drugs are mentioned in the *Essentials of Homœopathic Therapeutics*, where the following indications are given: *Hepar*—"Late in the disease, when during resolution pus forms; croupous pneumonia." *Lachesis*—"Especially when pneumonia assumes a typhoid form and where an abscess forms on the lung; brain symptoms are present, such as low muttering, delirium, hallucinations; the sputum is frothy and mixed with blood; the patient rouses out of sleep in an asthmatic paroxysm." *Rhus tox.* is of eminent service when the disease arises from damp cold and assumes from the beginning a typhoid form. *Carbo veg.* is useful when suppuration of the hepatized lung has taken place and the prostration is very great, threatening collapse.

PNEUMONIA.

Aconite. Probably no fact is more fully established in medicine, in any school, than the beneficial action of *Aconite* in pulmonary congestions. It is the remedy of remedies in the first stage of pneumonia, because it corresponds more closely to the symptoms usually

found in that stage. It should not, however, be used in this or any disease in the first or any stage unless the symptoms call for it.

The symptoms are these: High fever preceded by a chill; the pulse is full, hard and tense; there is a **hard, dry, teasing and painful cough**; there may be some expectoration present, if so it is watery, serous and frothy, may be blood tinged, but not thick. Thick expectoration indicates that exudation is commencing, and then *Aconite* is no longer the remedy. With these symptoms there is great restlessness, tossing about, anxiety and perhaps fear of death. *Veratrum viride* is similar to *Aconite* in some particulars; but it is easily distinguished; there is a full rapid pulse and a great deal of arterial excitement; the eyes are glistening and there is a red streak down through the center of the tongue. It is, perhaps, more often indicated at the commencement of a pneumonia than is *Aconite*.

A great indication for *Aconite* in pulmonary congestions is **suddenness of onset**, and especially so if it occurs in young and plethoric persons who are full of life and vigor; for it is pre-eminently in such patients that congestions, when appearing at all, appear suddenly. *Gelsemium* lacks the suddenness of *Aconite*. Here apathy is marked and the drugs need never be confounded.

Ferrum phosphoricum. This, like *Aconite*, is a remedy for the first stage before exudation takes place, and, like *Aconite*, if there be any expectoration it is thin, watery and blood streaked. It is a useful remedy for violent congestions of the lungs, whether appearing at the onset of the disease or during its course, which would show that the inflammatory action was extending; it thus corresponds to what are termed secondary pneumonias, especially in the aged and the debilitated. There is high fever, oppressed and hurried breathing, and bloody expectoration, very little thirst; there are extensive râles, and perhaps less of that extreme restlessness and anxiety that characterizes *Aconite*. This remedy, with *Kali muriaticum*, forms the Schüsslerian treatment of this disease.

Iodine. This remedy is one both for the first stage and second stage of pneumonia, especially for the croupous form. It has high fever and restlessness like *Aconite*, and there is a tendency to rapid extension of the hepatization. There is a decided cough and great difficulty in breathing, as if the chest would not expand, the sputum is blood streaked. *Iodine* may also be a remedy in the later stages when resolution does not progress, the lung breaking down with hectic and suppurative symptoms.

Dr. Kafka, our celebrated German confrère, prescribed drop doses of *Iodine* in the 1st, 2nd, and 3rd dilution, every hour or so, as soon as physical signs of pneumonia showed themselves, and claimed that it would arrest the process of hepatization within twenty-four hours. He considered that *Aconite* was entirely unnecessary in the treatment of pneumonia. It is also favorably spoken of by Prof. T. F. Allen.

Veratrum viride. In violent congestions about the chest preceding pneumonia *Veratrum viride* may be the remedy, and thus it is seen that its use is more in the beginning of the disease, and especially where there is great arterial excitement, dyspnea, chest oppression

and stomach symptoms of nausea and vomiting; the engorgement is profound, and here it greatly resembles *Sanguinaria*; but it differs from that drug, in that it is of little use after hepatization has taken place. There is high fever, violent action of the heart, the pulse is full, hard, and rapid, and the tongue has a red streak down the center; this latter symptom is a characteristic keynote of the drug. The air cells at the bottom of the lobes are filling up with frothy mucus. The pulse will indicate, it being full and hard. Hard, quick and small indicates *Aconite*.

Bryonia is the remedy for pneumonia; it furnishes a better pathological picture of the disease than any other, and it comes in after *Aconite*, *Ferrum phosphoricum* and *Veratrum viride*. The fever continues, but the skin is not as hot and the patient not as restless as in *Aconite*. The cough of *Bryonia* is looser and more moist than that of *Aconite*, and there are usually sharp stitching pleuritic pains; the cough of *Bryonia* is also hard and dry at times and the sputum is scanty and rust colored, so typical of pneumonia. There may be circumscribed redness of the cheeks, slight delirium and apathy; the tongue will most likely be dry, and the patient will want to keep perfectly quiet. It is a right sided remedy and attacks the parenchyma of the lung, and is perhaps strongly indicated in the croupous form of pneumonia. The patient dreads to cough and holds his breath to prevent it on account of the pain it causes; it seems as though the chest would fly to pieces. The pains in the chest, besides being worse by motion and breathing, are relieved by lying on the right or painful side, because this lessens the motions of that side. Coughs which hurt distant parts of the body call for *Bryonia*. *Phosphorus* most commonly follows *Bryonia* in pneumonia, and is complementary. In pneumonias complicated by pleurisy *Bryonia* is the remedy, *par excellence*.

Kali muriaticum. Since the advent of Schüsslerism this has been a favorite remedy with some physicians, and not without a good ground for its favoritism. Clinical experience has proved that this drug in alternation with *Ferrum phosphoricum* constitutes a treatment of pneumonia which has been very successful in many hands.

The symptoms calling for *Kali muriaticum* as laid down by Schüssler are very meager; it is given simply because there is a fibrinous exudation in the lung substance. There is a white viscid expectoration and the tongue is coated white. It is better suited to the second stage, for when the third stage appears with its thick, yellowish expectoration it is replaced by *Kali sulphuricum* in the biochemic nomenclature.

Phosphorus, is "the great mogul of Lobar Pneumonia." It should be remembered that *Phosphorus* is not, like *Bryonia*, the remedy when the lungs are completely hepatized, although it is one of the few drugs which have been known to produce hepatization. When bronchial symptoms are present it is the remedy, and cerebral symptoms during pneumonia often yield better to *Phosphorus* than to *Belladonna*. There is cough, with pain under sternum, as if something were torn loose; there is pressure across the upper part of the

chest and constriction of the larynx ; there are mucous râles, labored breathing, sputa yellowish mucus, with blood therein, or rust-colored as under *Bryonia*.

Tuberculinum. Arnulphy says that in lobular pneumonia this remedy surpasses *Phosphorus* or *Antimonium tartaricum*, and competent observers are convinced that it has an important place in the treatment of pneumonia, some using it in every case intercurrently ; doses varying from 6x to 30x.

When typhoid symptoms occur in the course of pneumonia then *Phosphorus* will come in beautifully. *Phosphorus* follows *Bryonia* well, being complementary to it. There is also a sensation as if the chest were full of blood, which causes an oppression of breathing, a symptom met with commonly enough in pneumonia. Hughes maintains that *Phosphorus* should be given in preference to almost any medicine in acute chest affections in young children.

Lilienthal says *Phosphorus* is our great tonic to the heart and lungs.

Hyoscyamus. Dr. Nash considers this remedy one of the best in typhoid pneumonia, meaning that it is more frequently indicated than any other remedy.

Sanguinaria. When *Sanguinaria* is indicated in pneumonia, there will be fever, burning and fullness in the upper chest, a dry cough, sharp, sticking pains more on the right side, dyspnœa, and the expectoration is rust-colored, here resembling *Phosphorus*. It has circumscribed redness and burning heat of the cheeks, especially in the afternoon. The hands and feet are either very hot or very cold, the heart is weak and irregular, there is great engorgement of the lungs and the congestion is very intense, here resembling *Veratrum viride*, but the arterial excitement is more marked under *Veratrum viride*. *Sanguinaria* has imperfect resolution and purulent expectoration, as in *Sulphur*, but it is more offensive, even becoming so to the patient himself.

Chelidonium. Bilious pneumonia is, perhaps, more often indicative of *Chelidonium* than of any other remedy. There are stitching pains under the right scapula, loose, rattling cough and difficult expectoration, oppression of chest, as under *Antimonium tartaricum*, and fan-like motions of the alæ nasi, as under *Lycopodium*.

Mercurius is quite similar in bilious pneumonia, the stools will decide, those of *Mercurius* being slimy and accompanied by tenesmus ; the expectoration is also apt to be blood-streaked. With *Chelidonium* there is an excess of secretion in the tubes, which is similar to *Antimonium tartaricum*, and an inability to raise the same.

It has been greatly praised in catarrhal pneumonia of young children where there is plentiful secretion and inability to raise it. The right lung is more often affected in cases calling for *Chelidonium*.

Antimonium Tartaricum. This drug is especially indicated in pneumonia and pleuro-pneumonia at the stage of resolution. There are fine moist râles heard all over the hepatized portion of the lungs ; these are different from the *Ipecac* râles ; they are fine, while those of *Ipecac* are Coarse. With *Antimonium tartaricum* there is a great

oppression of breathing, worse towards morning, compelling the patient to sit up to breathe. There are also sharp, stitching pains and high fever, as under *Bryonia* and it, perhaps, more closely corresponds to the catarrhal form than it does to the croupous. Bilious symptoms, if present, do not contra-indicate, as there are many of these in its pathogenesis. There is one peculiar symptom, the patient feels sure that the next cough will raise the mucus, but it does not. When there is deficient reaction, as in the aged or in young children, this remedy is particularly indicated.

Kali carbonicum is, perhaps more similar to *Bryonia* than any drug in the symptom of sharp, stitching pains in the chest. These are worse by motion, but, unlike *Bryonia*, they come whether the patient moves or not, and are more in the lower part of the right lung. In pneumonia with intense dyspnoea and a great deal of mucus on the chest, which, like in all of the *Kalis*, is raised with difficulty, wheezing and whistling breathing, *Kali carbonicum* is the remedy, especially if the cough be tormenting. It comes in with benefit oftentimes where *Antimonium tartaricum* and *Ipecac* have failed to raise the expectoration.

Kali bichromicum may be indicated by its well known tough, stringy expectoration.

Sulphur is a remedy to be used in any stage of pneumonia. It will prevent, if given in the beginning, if the symptoms indicate it. It will prevent hepatization and cause imperfect and slow resolution to react. When the case has a typhoid tendency and the lung tends to break down, where there are râles, muco-purulent expectoration, slow speech, dry tongue and symptoms of hectic, *Sulphur* is the remedy. Weakness and faintness are characteristic symptoms. Its field is especially in neglected pneumonias in psoric constitutions, with tendency to develop into tuberculosis.

In purulent expectoration *Sanguinaria* is the better remedy, especially where it is offensive even to the patient himself. If the lung be hepatized, the patient at night restless and feverish, ulceration threatened, and there is no tendency to recuperation, then one may depend upon *Sulphur*.

Lycopodium is also a most useful remedy in delayed or partial resolution. There is a tightness across the chest, aching over lungs, general weakness. Hughes says it is the best remedy where the case threatens to run into acute phthisis.

In this fashion has Dr. Dewey given the therapeutics of over one hundred and fifty morbid affections. Some more of the latter, such as disorders of the Puerperal State, of the Prostate, &c., might and ought to have been added. The list of remedies, as we have shown, is also capable of improvement and enlargement. We hope this will be done in the second edition which, we doubt not, will soon be called for, as the work is eminently practical and cannot but be helpful to both student and practitioner.

EDITOR'S NOTES.

The Duration of Dreams.

As the opportunity for comparing the duration of a dream with the rate of thought of the dreamer is rare, the following instance may be of interest to some.

Some little time ago I had occasion to administer nitrous oxide gas to a sailor for the purpose of tooth extraction. He was a petty officer in the merchant service, and an intelligent man. He took the anæsthetic well, the tooth was duly extracted, and he recovered consciousness with the usual rapidity. However, just at the moment of waking up, he sprang wildly forward clutching in all directions with his hands, and with a wild and terrified look upon his face, shrieked out, "Hold me, hold me, or I shall be drawn back again!" And then in an instant he was wide awake but sweating with terror, and still trembling with fright.

After an interval of time, when the man had completely recovered his self-possession, I questioned him as to what he meant when he called out that he would be drawn back if he were not held. He said that he had been shipwrecked a year before, and that he had dreamt of the entire episode with every detail, finishing with the breaking of a rope while he was being dragged out of the surf, his last shout being a call upon those on shore to catch hold of him.

His dream was an exact reproduction of previous impressions. The original and real wreck lasted, so far as he was concerned, for three hours and three-quarters, commencing with his being aroused from his sleep by being thrown from his bunk on to the floor, by the striking of the ship upon the rocks, and terminating with his being dragged up the beach through the surf.

The dream certainly did not last more than ten seconds—the production of the original impressions took three hours and three-quarters.

I questioned the man very closely as to the first wreck, and am thoroughly satisfied he spoke the truth.—G. B. Flux in *Brit. Med. Journ.*, July 6.

Destruction of Tubercle Bacilli in Fat.

A. Gottstein and H. Michaelis (*Deut. Med. Woch.*, No. 11, 1901) record their experiments with tubercle bacilli. They point out that although various observers have stated that the bacilli are only killed at a temperature of 100°C., the medium in which they are grown plays a very important part. Tubercle bacilli are encapsuled by a

firm layer of wax-like material, which resists the direct action of heat under many conditions. If, however, the bacilli are growing in fat, the action of this layer is much less marked. They find that a temperature of 87°C . is sufficient to destroy the bacilli in fat, and apply this fact to the question of butter and other fat foods. The sterilisation of butter containing tubercle bacillus cannot take place without affecting the constitution of the butter. They experimented with oleo-margarine, neutral lard, sesamöl, and cotton seed oil. They took 130 c. cm. of the fluid fat (heated), and applied a heat, by means of a water bath, of 40°C . To this they added a portion of a several weeks old agar culture of tubercle bacilli. As soon as this was mixed, two guinea-pigs were injected with 0.5 c.cm., and served as control experiments. Both animals died (19 and 53 days after injection respectively), and *post mortem* examination showed ample tuberculous lesions. The oil containing bacilli was then brought up to a temperature of 87°C ., and kept at this point for an hour. They took 0.5 c.cm. of the oil at the moment that it reached 87° , at 5, 15, 30, 45, and 60 minutes later, and injected it into guinea-pigs; taking precautions that the instruments, etc., remained sterile for each experiment. The two guinea-pigs injected with oil at the moment of reaching 87° died 36 and 91 days respectively later. Neither showed tuberculous lesions. The rest of the 83 animals injected remained free from tuberculosis. They therefore conclude that 5 minutes' heating of oil containing bacilli tuberculosis to 87°C . is sufficient to sterilise it.—*Brit. Med. Journ.*, June, 29, 1901.

Anomalies of the Labial Frænum.

Peculiarities in the formation of the labial frænum are not uncommon. Sometimes the frænum persists as a fibrous cord extending from the mucous membrane of the lip, and passing between and separating the central incisor teeth, and continuing its attachment along the mid-line of the premaxillary portion of the palate, as far as the orifice of the anterior palatine canal. The redundant frænum is frequently noticeable as a fleshy body, appearing below the upper lip and resting between the two front teeth. It will be seen upon examination that the movements of the lip pull upon this bridle, ultimately causing separation of the teeth. Permanent unsightly gaps between the central incisor teeth are greatly due to this cause in adults. Other causes are deficient lateral pressure from absence of teeth, and various other dental causes. Heredity plays an important part in its causation.

As regards the etiology of this anomaly the following seems a plausible explanation : A portion of epiblast from which the epithelial structures are derived is included during the union of the mesial nasal processes of the fronto-nasal processes, which forms the os incisivum (endo-quattrion). Sometimes owing to deficient union or delayed union, this portion of epiblast fails to be sufficiently absorbed, and persists as a redundant frænum. The inferior labial frænum is formed by an involution of epiblast between the mandibular plates (first branchial arches). This inclusion of epiblast takes place at a very early period of intrauterine life, as all the various fissures of the face should have closed by the tenth week.

The treatment for this condition is to divide the frænum midway with a pair of blunt-pointed scissors, and then to cauterise the cut surface with pure carbolic acid or silver nitrate. In some cases, where there is much redundant tissue, it is necessary to remove a small V-shaped portion. The frænum should not be divided higher up than midway between the free margin of the gum and the reflection of mucous membrane of the lip. A mechanical apparatus is often necessary to draw the teeth together.—*Brit. Med. Journ.*, July 6, '01.

A New Method of distinguishing Human Blood from that of Animals.

C. Tarchetti (*Gazz. degli Osped.*, May 19th 1901) describes a new procedure for this purpose : If into an animal (A) the blood of a different species (B) is injected, then after a certain time the blood of the animal (A) is found to be toxic towards the blood of the species (B). Thus, by repeating injections into rabbits of human blood—10 c.cm. on four or five occasions at intervals of about a week—Uhlenhuth and Wasserman got from the blood of the rabbit a serum which exhibits hæmotoxic powers to human blood, not only in a fresh state but also when dried and redissolved in normal saline solution. Ape's blood was the only other one which behaved like human blood. Wassermann and Schultze proceed thus : Dissolve the spot of blood to be examined in a little normal saline solution ; filter ; place 4 or 5 c.cm. in two small test tubes, to one of which (a) add 0.5 c.cm. of rabbit's blood made hæmotoxic as above ; to the other (b) add 0.5 c.cm. of normal rabbit's blood. A third control tube (c) may be made with 4 or 5 c.cm. of solution of the blood of any animal save ape or man in distilled water. Place the solutions in a thermostat at 37°C.; if the spot of blood be human, in an hour's time the tube (a) will show a turbidity or a flocculent precipitate, while (b) and (c) will

be perfectly limpid. Tarchetti carried out similar experiments with human blood and that of animals, both fresh and dried, for more than two months on cloth, wool, and knife blades, and found the method reliable. The reaction occurs almost as well at the air temperature as at 37°C. The solutions must be absolutely clear to begin with, and he finds distilled water better for this purpose than normal saline fluid, for it brings all the hæmoglobin out of the corpuscles. He has found that the diagnosis can be at once made with the greatest certainty in a hanging drop under the microscope; a slight uniform precipitate is at once formed, and in a few minutes is seen as islets united in a reticulate pattern much resembling the arrangement of Eberth's bacillus agglutinated by typhoid serum. The same thing is observed in filtered aqueous solutions of dried blood. It is only after a long time (twelve to twenty-four hours) that a similar appearance is seen in blood of other animals.—*Brit. Med. Journ.*, June 29, 1901.

Visual Acuity in its Relation to Trades.

At the recent meeting of the American Medical Association Dr. H. V. Wuerdemann, of Milwaukee, read a paper on Economic Limitations of the Visual Acuity in the Various Trades and Professions. According to an abstract published in the *Philadelphia Medical Journal* of June 15th, he said that the meaning of blindness as used in daily life is a much narrower one than is embraced in the scientific term. It has been determined that ordinary coarse work like that of a common labourer does not require more than one-half of the normal for a condition of success, but on the other hand, a corresponding diminution in the vision of a skilled mechanic would so decrease the clearness of the retinal impressions to which he has been accustomed in the performance of his duties as to hamper him seriously. Individual members of certain occupations do not have the same visual demands exacted from them. Dr. Wuerdemann divides the occupation into two groups. The occupations requiring higher degrees of visual acuity and a range from 0.75 to 0.15 are, medicine, theology, law, art, engineering, students of all professions, fine mechanics, iron and steel workers, rolling mill workers, machinists and metal workers, musical instrument makers, the linen industry, the textile industry, the silk industry, paper workers, leather workers, garment makers, printers, machine employees, mine workers, railway and steamship employees (including city roads), soldiers and sailors, telegraph operators, and skilled labour generally. The trades requiring lower degrees of visual acuity, and a range from 0.50 to 0.05, are glass-

blowers, mineral workers, quarrymen, builders, pottery makers, brickmakers, workers in the chemical industries, employees in gas and water works, paper makers, wood workers, mill employees, manufacturers of food articles, sugar factory employees, brewers and maltsters, tobacco workers, chimney sweepers, street railway employees (horse cars), employees in lifts and wine cellars, teamsters, bargemen on inland waters (rivers, etc.), farmers, day labourers, unskilled labour, etc.—*Brit. Med. Journ.*, July 6, 1901.

A Rectal Prostatic Sinus.

These notes may be worth recording. A. B., aged 30, came to me over two years ago on account of a frequently recurring discharge from the rectum, and various unpleasant sensations, such as "stabbing" and throbbing about the prostatic locality, which induced a state of almost confirmed melancholia. I had treated him six years before for gonorrhœal prostatic gleet, but he never had a prostatic abscess.

On examination I found a perfectly white discharge oozing from a small sac about half an inch from the margin of the anus. Pressure on this sac caused about a drachm of the fluid to exude. The prostate seemed normal to touch. A probe passed into the sac went three quarters of an inch in the direction of this gland. The microscope showed pure prostatic secretion, but no pus cells.

I told my patient, who was exceptionally intelligent, that I was doubtful as to the course to pursue, for if I opened up and packed the sinus, I was afraid the discharge might still continue. I told him I would first try the passage of large sounds with the possibility of encouraging the secretion to escape through its natural channels by opening the ducts, and also to remove inflammatory relics.

This treatment did no good whatever. It was suggested that the regular performance of the function of the sexual organs, by keeping the plethoric prostatic ducts less full, might prevent the secretion appearing at the abnormal site, and such was the case. Yet the consciousness of the existence of the abnormality in itself kept my patient on the confines of insanity. Emaciation and insomnia became marked, and I feared suicide. It was remarked there was a certain periodicity about the escape of the fluid at the sinus. My patient next saw a distinguished surgeon. The latter naturally enough considered that he had an abscess, and proposed to lay it open. This was done.

This treatment was also ineffectual. I therefore tried the more radical expedient first suggested—that is, I slit up not only the sac,

but the sinus which led to it from the prostate as far as I could pass a probe, and packed every day the opening made. A perfect cure happily ensued, and in two months all discharge had ceased, but it took this time.

I trust the publication of this case may be at least interesting on account of its rarity. I may have searched the literature very badly but I have been unable to find the record of such a case—namely, a rectal prostatic sinus, without pre-existing abscess. Again, the intermittent character of the discharge is not without interest in a physiological light.—*Brit. Med. Journ.*, July 13, 1901.

Pernicious Anæmia.

Th. Rumpf (*Berl. klin. Woch.*, May 6th, 1901) publishes the results of his analyses of blood in cases of pernicious anæmia. He first turns his attention to the etiology of the disease. He can only explain the disease by looking on it as a combination of symptoms due to various causes. Of these he mentions bothrioccephalus latus in the intestine—a very rare cause—carcinoma, specially of the stomach, pregnancy and parturition, syphilis, insufficient nutrition and pathological conditions of the gastro-enteric canal. Besides cases due to or following one of these conditions, he calls attention to those cases for which no cause can be ascribed—cryptogenetic pernicious anæmia (Birch-Hirschfeld). He says that just as ill-understood as the etiology of the disease is the actual condition of the blood. The microscopical appearances are well known, but the true chemical changes have almost entirely been neglected. He conducted experiments with Dennstadt. They examined the blood of two stillborn fœtuses as a control, and further compared the results with those obtained by Schmidt and other analysts. They found that the blood in pernicious anæmia contained a larger quantity of water than normal blood, a smaller quantity of solids, a higher proportion of chlorine, and a lower proportion of potassium, iron, and fat. The deficiency of potassium is more evident when a comparison is made with the quantity of sodium and of chlorine. In pernicious anæmia there is not sufficient sodium to "cover" the chlorine, and the potassium also is present in too small quantities to combine with all the free chlorine. In normal blood there is an excess of sodium when estimated by the side of chlorine, without any of the potassium being needed to take up the chlorine. They further examined various tissues of the body, and found that the proportion of water was higher than normal in the heart, but considerably lower in the liver, spleen, and brain. The

solids were in excess in the heart, and especially in the liver and spleen. There was also a deficiency of sodium to cover the chlorine in the liver and spleen, while in the former potassium was present in a higher proportion than normal, and in a lower proportion in all other organs. Making his deductions from these investigations, he turned them to practical use by treating pernicious anæmia with potassium carbonate, tartrate, and citrate. He reports 4 cases, 3 of which he describes as dying when he began the treatment; all recovered. A fifth case was improved, but as he did not continue the treatment for a sufficiently long time, Rumpf does not include that in the trial cases. The patient relapsed later, and died after two months' further illness. He does not claim that potassium salts are a true specific remedy for all cases of pernicious anæmia, but strongly recommends that a trial of the treatment should be made.—*Brit. Med. Journ.*, July 13, 1901.

Mental Obsessions.

Mental "obsessions" refer to imperative ideas, often of a ludicrous, indecent, or dangerous nature, which arise in the mind regardless of the proprieties of time and place, and often subject the patient to much distress and anxiety, and may even be the prelude to insanity. In the *Revue Neurologique* for April, Haskonce, of Prague, has an interesting paper dealing with these aberrant mental phenomena. Some observers, with Pitres and Regis, say that "obsessions" are often only morbid fears (phobias) in an aggravated form, and operating in the intellectual sphere, that is, that primarily they are morbid affective processes. Others hold that they are primarily intellectual conditions like "fixed ideas." In the study of 110 different cases Haskonce found that while some were primary lesions of intellectual origin the majority were of affective origin. Fixed ideas belong to the first class, while phobias belong to the second. In some cases it was impossible to say to what category a case belonged (transitional case). "Sometimes the visual image provoked the mental obsession, without there being at the time, as before it, any emotional reaction." The medico-legal importance of these cases was great. The patient sees, for example, a hatchet, and is suddenly beset with the idea of killing a person who is near. In such a case the presence of the person, and the internal conflict between the obsession and normal feeling, produce a secondary emotional disturbance in the patient, namely, distress and anxiety lest he be impelled to do the deed. In some cases the anguish experienced is so great that self-control fails,

resistance is overcome, and the crime is perpetrated. Epilepsy may be present as a complication, but apart from its presence true obsessions are attended with lucidity of consciousness, whereas with epilepsy there is usually mental automatism and amnesia, but seldom lucidity. Haskonde records the case of a young man, aged 20, who was subject to the obsession, suddenly recurring, of his not being really alive or existent. There was no phobia or anxiety in this case and the patient was free from headaches and slept well. Phobias and obsessions are prone to occur after disturbances of the sexual organs including menstruation and abortion. Some phobias occurred after brain over-exertion, poisoning by coffee or gas, dyspepsia, constipation and in exophthalmic goitre. In some of these toxic action played a determining part. A curious case of obsession was that of a man aged 26, of backward intelligence, and the subject of *folie du doute*. He had an irresistible tendency to stop and look at objects on the ground (bits of paper, matches, etc.), and to ask questions as to whence they came, why, etc. "Plus les choses sont futiles, plus j'y porte interet." In another case a married woman, aged 33, childless, and of nervous parentage, there was a morbid fear of carriages, agoraphobia, and feelings of suffocation, and oppression on seeing objects suspended from ceilings or walls, while she could never hold any closed object—for example, a bottle or letter—in her hand, without having it opened first. To see a corked-up bottle made her feel "choky." She was liable to nightmares. Another case is mentioned of a man, aged 60, a neurasthenic bachelor, who since the age of 3 experienced fright on seeing sunbeams indoors in a house or church. True obsessions and phobias *per se* should be distinguished from the prodromes of such mental disorders as melancholia, paranoia, or general paralysis.—*Brit. Med. Journ.*, July 13, 1901.

CLINICAL RECORD.

Foreign.

REPORT OF TWO CASES OF DOUBLE LOBAR
PNEUMONIA.

BY EDWARD E. CORNWALL, M.D.

One of these cases showed no fever during its course, and the other had, presumably, only one kidney. The first died in the congestive stage, and the other, after running an unusually severe course, completely recovered.

The first case occurred in the Manhattan Beach Hotel in July, 1900. The patient, a man of 55, presumably in fairly good health, was taken in the night with vomiting and purging. At 7 the following morning he was first seen by the writer. Then his temperature was normal and his pulse but slightly accelerated. His diarrhea had ceased, but his nausea continued. He complained of a slight chilliness, but neither of pain nor cough. His face had a slightly dusky hue. Aromatic spirits of ammonia and bismuth were given to him. Seen two hours later, he was found to have a slight, dry cough, no fever, and an acceleration of the pulse to about 100. Over the lower lobes of both lungs fine, crepitant râles and bronchovesicular breathing were discovered. His face was still dusky. Strychnin, whisky, and aromatic spirits of ammonia were given, and preparations were made for cupping; but before the cupping could be done the patient suddenly complained of great restlessness, had an unusually violent spasm of coughing, during which he sat up in bed, developed pulmonary edema, and, in less than a minute from the time he complained of restlessness, fell back on his pillow dead.

The second case occurred in a female, twenty-five years old, unmarried, who was admitted to the Williamsburgh Hospital in October 1900. In 1891, according to the positive statements of the patient, her brother, and sisters, her left kidney was removed in a hospital in Hamburg, Germany. For what cause this was done could not be ascertained but the patient said that blood had appeared in her urine before the operation. She recovered completely after the operation and was in good health immediately before the present attack.

This case ran a regular course and defervesced on the seventh day. The disease involved only the left lower lobe at first, but on the second day extended to the right lower lobe. This case was characterized by the severity of the symptoms. The temperature, as the crisis approached, ranged very high, being between 104° and 106°

during the twenty-four hours preceding defervescence. The pulse-rate, during this same period, ranged between 120 and 150, being near 150 most of the time. The respiration rate during this period continued between 60 and 70, and during most of the time before was very high. There was acute congestion of the kidneys, with considerable albuminuria, which completely cleared up after defervescence. There was pulmonary edema at the time of the crisis. Vomiting at first, and later great pain and restlessness, were prominent symptoms. For nearly two days before defervescence the patient's condition seemed hopeless.

The particular features of the treatment were: copious administration of water to drink throughout the disease, continuous application of dry cups at short intervals throughout the disease, and continuous inhalations of oxygen for two days at the time of the crisis. For stimulation of the heart, strychnin, whisky, aromatic spirits of ammonia, and digitalin were used, the strychnin and digitalin hypodermically. Morphin was required as a sedative.

The recovery of this patient was something of a surprise, and the writer likes to think that it was in some degree due to the copious water-drinking and vigorous cupping. It is certain that without continuous inhalations of oxygen at the time of the crisis the patient would surely have died. That the loss of one kidney (if we can credit the testimony as to its loss) did not prove a fatal handicap in so severe a case as this is certainly an interesting fact.

Remarks.

In this paper Dr. Cornwall told how he himself treated pneumonia symptomatically, on the expectant plan; but before doing that he discussed briefly a few recent suggestions in the line of specific pneumonia therapeutics. The anti-pneumococcic serum of Klemperer he did not believe would prove of very much value, because, in his opinion, the toxemia is a much less important element in pneumonia, considered clinically, than the solidified lung. Treatment with large doses of digitalis, as recommended by Putresco and others, he condemned as theoretically contra-indicated. On the use of guaiacol, creosote carbonate, salicylic acid, and other similar drugs, in large doses for antiseptic effect on the pneumococcus, he reserved his opinion pending further enlightenment; but he did not think it possible that the toxemia of pneumonia could be more injurious to the patient than the large doses of salicylic acid recommended. Of his further remarks, the following is a brief summary.

The prophylactic treatment of pneumonia consists in keeping weak.

ly and diseased people away from the patient, washing the patient's hands and face frequently, tying towels around his neck to catch stray sputum if necessary, receiving sputum into sputum cups or gauze handkerchiefs, which can be burned, and disinfecting matter vomited.

A patient with pneumonia should be kept in the horizontal position from the beginning of the disease until at least a week after defervescence. He should not be disturbed by too frequent examination. His diet should be fluid, until after defervescence. A full sponge-bath should be given once a day, except when his condition is such as to make the slightest disturbance dangerous. Good ventilation is of prime importance.

Throughout the entire course of the disease water should be given to drink in large quantities, in order to wash out the increased amount of excrementitious matters and the toxins in the blood, to minimize the irritation and congestion of the kidneys, due to the increased work of excretion thrown on them, to improve the circulation, to supply plenty of sweat to be evaporated on the surface of the body, thereby cooling it, and to act (taken cold) as a direct refrigerant.

A pneumonia jacket of cotton batting between oiled silk is soothing and a safeguard against exposure.

The bowels should be opened with calomel, followed by salts at first, and kept open throughout the disease with salts or enemas, if necessary.

Indigestion should be guarded against, and treated on general principles, if it arises. It is often a result of over-feeding. Vomiting at the beginning of the attack does not call for treatment unless it persists.

The urine should be examined every two or three days, and if symptoms of renal congestion are marked, a saline diuretic, and poulticing or dry-cupping of the lumbar region are called for.

In the stage of congestion an attempt should be made to arrest the disease. The local congestion should be relieved by lowering the general blood pressure. Blood letting is effective, and suitable in some cases, but, in general calomel and a saline, aconite, and cupping are better treatment. The aconite should be given in very small doses frequently repeated, and should not be continued after the stage of congestion. Cupping may be wet or dry. For continued or frequent application dry cupping is preferable, but to be effectual it must be thorough. The chest should be kept covered with cups, which are constantly renewed. Cheap tumblers of thick glass are

suitable for the purpose. It is difficult or impossible to properly cup very thin people.

After consolidation has taken place we should try to prevent extension of the disease, promote resolution, alleviate symptoms, and support the patient.

Seances of dry cupping, continued at short intervals throughout the disease, may be of great value in preventing extension and promoting resolution.

Pain and restlessness may be alleviated by cupping, wet or dry, hot poultices or cold applications, and morphine. If the restlessness is so great that the patient suffers from lack of sleep, morphine should be given; for lack of sleep in the early part of the disease, by weakening the patient, may be a sufficient cause for his failure at the crisis.

Fever seldom calls for anything more than a sponge-bath. If excessively and persistently high a cold pack may be given.

The danger spot is the heart. It is affected to a certain extent by the general toxemia, but to a much greater extent by the mechanical obstruction in the lungs. It needs stimulation in most cases; but stimulation should not, as a rule, be given in the congestive stage. It should be begun cautiously, and increased to meet the needs of the case. It should not be delayed too long. The best drug is strychnine. With this drug, with whisky, digitalis, and aromatic spirits of ammonia, with morphine and oxygen, which two are notable heart stimulants, we can stimulate the heart as well as with any drugs in the pharmacopeia.

Dyspnea, if considerable, calls for inhalations of oxygen; and the inhalations should be given continuously if the dyspnea is extreme. Giving routine inhalations of oxygen for ten-minute seances, at short intervals throughout the disease, is good treatment.

Pulmonary edema calls for oxygen, increased heart stimulation, and vigorous cupping.

Beware of giving too much treatment in the early stages of pneumonia, and too little at the time of the crisis.—*Brooklyn Med. Journ.* June 1901.

CASES OF SERIOUS EYE DISEASES CURED BY
CROCUS SATIVA.

By FRED. W. PAYNE, M.D., Boston, Mass.

Case I. The following interesting case came to me for treatment, March 20, 1899; the history as then elicited was as follows, viz.: Mr. C., age 64, is an inveterate smoker, using mainly the strongest kind of a nicotine-soaked pipe. Two years previously had a severe attack of acute tearing pain suddenly develop in the right eyeball, accompanied by intense inflammation and a sensation as if the globe was greatly contracted and drawn in; this was followed by a spreading obliteration of the entire visual perception, beginning at its centre, and spreading rapidly peripherally till all consciousness of the presence of light had vanished, leaving the eye totally and irreparably blind, so that not a vestige of light remained; the acute glaucomatous process was complete in less than an hour after the first sensation of pain, the pupil becoming dilated, *ad maximum*, and immovable; the crystalline lens rapidly swelled, developing a cataractous state, with noticeable blood-vessels occupying its superficial surface within the area of the greatly dilated pupil. Such was the state of the right eye induced by this fulminating process when he called in March, 1899. The left eye was now becoming rapidly hazy throughout the whole visual area, so much so that he had considerable difficulty in seeing while walking; his ability in reading was decidedly curtailed, objects and type becoming "mixed," as he said, "as if seen through a misty atmosphere," "as if a gauze or veil before him;" he had diplopia at times seen by the left eye alone particularly as the light glances from the shiny arm of his spectacle frame, this peculiarity, being pathologically due to the imperfection in the layers of the crystalline owing to the presence of the infiltrated, cataractous opacity; he had sudden flashes before the eye as of an electric spark, and at times dark and luminous specks appeared before him. Under palpation the left eyeball was noticeably increased in tension, while the right eyeball had become greatly decreased in this regard till its walls were almost flabby. The left crystalline showed irregular striæ of opacity: he must frequently wipe his eyes as though a film of mucus was over it, though no mucus was present; had a feeling as if water was constantly running into the eye, or as if air was blowing on and through it, and as if the eye was growing smaller and shrunken. Notwithstanding the profundity and magnitude of the situation, the few symptoms that were present seemed so conclusive and prominent as an aid to the choice of the remedy that I felt considerable encouragement that if the picture could be found under any of the provings in our *Materia Medica* that much aid in the restoration, so far as the left eye was concerned, should be accomplished. From the fact that *central vision was invaded in the eye first attacked, and extended itself therefrom peripherally*, and also from the fact that this condition was associated with *largely dilated pupils*, and with a *feeling existing as of water running into the eyes, inducing a biting sensation as of the presence of smoke*, was enough to call my attention to the proving of *Crocus sativa*. In addition to the

above symptoms under the proving of *Crocus* were found: *Sensation as if the eyes were becoming smaller. Feeling as if cold air was blowing on and through them. Sudden flashes before the eyes, as of an electric spark.*

That the *simillimum* displayed its usual wonders may be learned from the following history: Mr. C. now reads with care with his presbyopic glasses; is well able to attend to his occupation as machinist, where careful use of the eyes is required, even in places where the light is dim, and thus necessarily trying; all blurring and "mixing" has disappeared, and he now considers his eye as good as in that of his youth; the fact remains, however, that a condition of partial opacity still remains in the crystalline that is likely to always exist, though the major part of the visual area is now clear and translucent, thus permitting satisfactory and useful use of the eye. *Crocus sat.* was the only remedy prescribed, and he has had infrequent doses of the same at intervals of from 1 to 3 months; he is still under observation. The symptoms of the disease in question, as found under the proving of *Crocus sat.*, are as follows:

Sudden flashes before the eye like electric sparks. Pupils much dilated; sensation as of cold air blowing across the eyes. On using the eyes briefly they feel irritated and dry as if the room was full of smoke. Feeling as if water was constantly coming into the eyes. Must wink and wipe the eyes often, as though a film of mucus was over them. The eyes see through a mist, all things appear paler, as if a gauze before the eyes. Obscuration at night, after which a sensation as of bright stars dancing before her. He is frequently obliged to wink and to wipe his eyes as if a pellicle of gum were drawn over them. Inclination to close the eyes firmly from time to time. Sensation as if the eyes were becoming smaller. Sudden flashes before the eyes, in the daytime, like electric sparks. Sensation in the eyes as if smarting from smoke.

All the preceding symptoms may with confidence be inscribed in the *Materia Medica* under the proving of *Crocus sat.* as a curative result in a most serious lesion.

Case II is that of a man, 35 years of age, who, on awaking the morning before landing from a transatlantic voyage, was seized with a sudden blurriness of vision in the left eye, beginning at its central and lower section and rapidly extending its limits till all useful perception of vision was extinguished, the central part being intensely dark, shading off towards the circumference, till only a rim of light was noticeable all around the peripheral margin of the visual field. The curtailment of the visual field, as shown by the perimeter, was 35° above, 70° outward, 50° below, and 50° inward, thus leaving a scotoma large enough to obliterate central vision, while the remaining area was dull and smoky, as if looking through muddy water. Occasionally he had a black line or wave in motion before him, accompanied by a luminous appearance as of an electric flash. The condition of vision was confusing as he attempted to coordinate, so that he must close the bad eye in order to see steadily with the other.

It may here be stated that an embolism of the central artery of the retina had occurred in consequence of an insufficiency of the mitral valves, whereby the sudden visual loss had occurred and the artery become plugged. There were no symptoms in the case beyond those already detailed, so that the choice of the remedial agent must come from scarcely more territory than a guess. The fact of the advent of the visual obliteration coming as it did, and occupying a central position, while the circumference, during the whole process, was less obscured than the centre of the field, also from the fact that flashes as of electric lights traversed the visual plane at frequent intervals, gave some weight to the choice of *Crocus sat.*, for both these symptoms are prominent under its proving. *Crocus sat.* was prescribed, and in three days thereafter another mapping of the visual field, by means of the perimeter, was made that showed an enlargement of the field upward of 10° , outward of 10° , downward of 10° , and inward of 13° ; in three days more the field had extended upward to a normal extent, downward, outward and inward respectively 5° more. At this time I was prevailed upon to allow the gentleman to go to a distant part of the country, owing to important business, so that eleven days now passed before another measurement was made, when a corresponding gain was manifest, only a small scotoma now occupying the centre of the visual area, though the field otherwise was of a dark, foggy, brownish appearance, relatively as it had been since the onset of the hæmorrhage, though becoming steadily lighter and clearer, while the acuteness of the visual perception was also gradually gaining. The man has now, in about a year's time, fully regained the use of his eye, and the visual ability is as clear as if never having been invaded. Glasses are now worn to correct a compound myopic astigmatism that has always existed, such usually being a congenital defect. Thus has the *simillimum* again exemplified its wonders, though its choice was, of necessity, largely the result of guessing. Similar hæmorrhages are usually fraught with direful results to the welfare of the sense of vision, many an eye having become totally blind from no greater, and even less, a hæmorrhage than that in this case. All this simply shows how efficient and profound are the influences coming from the law of cure that our inspired founder, Samuel Hahnemann, has formulated and transmitted to us, whether applied with or without an exactness of individual effort, so long as the choice proves to be the *simillimum*, this being all that is necessary as shown by case No. 2, where restoration could never have been effected only as the one agent, that proved the law of similars, had been chosen.—*Journal of Homœopathica*, March 1901.

Gleanings from Contemporary Literature.**TUMOURS OF THE BLADDER AND ENLARGED PROSTATE.***Delivered before the Hull Medical Society.*BY DAVID WALLACE, C.M.G., F.R.C.S., EDIN.,
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With the introduction of the light internal cystoscope in 1887 the surgery of the bladder became much wider in its scope and more accurate. Diagnosis and prognosis both made enormous strides because definite opinions could be arrived at much earlier in the course of an illness. Dicta which for long had been thoroughly believed were found to be inaccurate and often misleading. Especially this was so in the case of hæmaturia. A patient with hæmaturia might have no other symptom to indicate whether the blood was renal or vesical in origin and not infrequently a wrong diagnosis was made or delay in proper surgical treatment was so great that the likelihood of successful treatment was much lessened. In tumours of the bladder this was particularly the case. Frequently in such tumours a causeless, symptomless bleeding is the first indication of anything being wrong, but diagnosis was often impossible unless a cystotomy, as introduced by Sir Henry Thompson, was performed, and surgeons hesitated to do this without more evidence of the probable seat and cause of the bleeding. Further evidence is got by cystoscopy. To-day in such a case the bladder would be examined cystoscopically and either negative or positive evidence of a tumour would be found, and being got at an early period treatment would be much more satisfactory than it had been formerly. Let me illustrate this by quoting two cases.

CASE 1.—A man aged 60 years, had a long-standing history of intermittent hæmaturia. For three years he was treated on the assumption that the blood emanated from the kidney or kidneys. He was seen and was treated by several physicians without benefit. The bleeding was occasionally very profuse, but as a rule it was moderate in quantity and was intimately mixed with the urine. There was no other symptom and careful examination of the urine made on many occasions failed to give any clue to the origin of the blood. On cystoscopic examination a large tumour attached to the right lateral wall of the bladder was seen. Suprapubic cystotomy was performed and the greater part of the tumour was removed. He made an excellent recovery. Bleeding recurred at the end of a year, but the patient lived for four years after the operation. The bleeding was at no time so profuse as it had been before operation and the patient was able to perform his business to within a few months of his death.

CASE 2.—In the case of this patient, who was 35 years of age, the first hæmorrhage had occurred one year before I saw him. It was causeless and was associated with no other symptom. There was nothing seen on careful

examination of the urine. He came before me during the third hæmorrhage, otherwise he was in excellent health. On cystoscopic examination a tumour—a sessile papilloma—was observed on the right lateral wall. It was of about the size of a walnut. I removed the growth through a supra-pubic opening and 13 months after the operation the patient was perfectly well. There was no bleeding or other symptom of recurrence.

These two cases illustrate the difference between early and late diagnosis, and probably the after-history will show the value of early treatment in the second case.

The proof of the importance of the cystoscope is partly demonstrated so far as tumours are concerned by the number of tumours of the bladder which are now treated. Previously to 1888 they were considered rare—now they are known to be of comparative frequency. I have during the last ten years seen upwards of 50 cases. Two books—Albarran's and Clado's—have been written on the subject, and Hurry Fenwick, Barling, Nitze, Guyon, and others have reported series of cases from time to time. This frequency is not, I believe, because vesical tumours are more frequent in their occurrence now than formerly, but it is because they are more often diagnosed. We are all familiar with this in other diseases. Mr. R. J. Godlee in a paper on Actinomycosis refers to this point about new diseases, or increased frequency of occurrence. It is not that they are more common, but when once a disease has been pointed out we are more on the alert to discover it when a case comes before us.

Regarding the varieties of bladder tumour I may first exclude those of extension from adjacent parts, and also those which have originated in the prostate. The classification which I give and my remarks on symptoms and treatment refer to primary tumours of the bladder wall. Albarran's classification is, I think, the best: (1) epithelial tumours: *simple* papilloma and *malign* epithelioma; (2) connective tissue tumours: *simple* fibroma, *malign* sarcoma, myxoma, and fibro-myxoma; (3) tumours of special tissues: angiomata and myomata; and (4) cysts: dermoids and hydatids.

Regarding pathologically simple or malign growths it is right to say that the former may clinically prove fatal just as the latter do unless suitable treatment is carried out. They give rise to hæmorrhage, cystitis, and secondary renal affections and it is from these that patients die when the tumour is malign—not, as a rule, from secondary growths.

SYMPTOMS.

The usual first symptom, although not necessarily so, is a causeless, symptomless bleeding. It may be of bright red blood or it may be dark and intimately mixed with the urine. The patient observes it simply because the urine is coloured. There is no pain or other symptom. Sometimes, on the other hand, pain or frequency of micturition may be first noticed. The bleeding is intermittent, the urine between times being clear. It varies in amount and the quantity is no criterion of the size or nature of the growth, but sometimes the patient states that the blood comes chiefly at the end of the micturitory act and this is of importance.

At a later period, cystitis being present, pus may be in the urine and then pain and frequency are complained of. The hæmorrhage may have occurred a year or two before the patient becomes so alarmed as to consult his doctor. The blood may only be present for a day or two and no recurrence of bleeding may take place for months or even for a year. One patient had bleeding for the first time seven years before I saw him and then bleeding at intervals of a year or more. As regards the size of tumours and the quantity of blood, one patient, a female, aged 60 years, had such severe hæmorrhage on several occasions that she was believed to be dying simply from loss of blood, but the tumour was not larger than a filbert, while another patient, a young man, aged 23 years, had the bladder almost filled by multiple papillomatous growths, and yet the bleeding at no time was serious. In early cases where the tumour is small bi-manual examination may give no indication of a tumour, but when the tumour is of large size, and particularly if infiltrating the wall of the bladder, it may be felt by this method of examination. Examination of the urine may be negative, and in my experience, so far as tumour cells are concerned, it usually is negative, but if cells are seen, especially large nucleated cells in groups, the diagnosis of tumour is assisted, but these cells do not necessarily enable you to tell the nature of the growth. The sound is not reliable and negative evidence by it is valueless. The cystoscope is invaluable, and it enables the cystoscopist in many cases to give a prognosis as well as a diagnosis. If hæmorrhage be present at the time of the examination it may, but rarely does, prevent satisfactory examination. Another examination can always be made when the urine is clear or the bleeding less profuse. Strict asepsis is necessary and for the use of the cystoscope three factors are needed—a urethra of sufficient calibre, a clear medium, and a sufficient quantity of solution in the bladder—e.g., four ounces.

PROGNOSIS.

Prognosis depends upon (1) the character of the tumour ; (2) its extent, site, and attachment ; and (3) the presence or absence of sepsis. This leads me to speak of the nature of the attachment of the tumour. It may be (*a*) pedunculated, (*b*) sessile, or (*c*) infiltrating. The nature of the attachment is very important prognostically and yet unfortunately prognosis cannot always be reliable even if the attachment can be recognised. A tumour with a narrow pedicle may have deep attachments and may invade the mucous membrane for some distance beyond the apparent attachment. In two cases after the removal of pedunculated tumours I have seen very rapid recurrence of the growth. The determination of the likelihood of satisfactory removal is important, as if the tumour cannot probably be excised the bladder should not be opened unless it be to give relief to pain and frequency of micturition or to arrest hæmorrhage. The arrest of hæmorrhage after suprapubic cystotomy in such cases is very remarkable and rapid even when the tumour is very extensive and had been bleeding freely, as the following case shows.

.. CASE 3.—The patient, whose age was 50 years, had severe and almost

continuous bleeding. A large tumour was readily detected on bi-manual examination. Within 24 hours after a suprapubic cystotomy the urine was quite clear and no recurrence took place for weeks, the patient rapidly regaining strength.

TREATMENT.

Palliative measures in the form of drugs are only justifiable when diagnosis has been made and when radical treatment is impossible, but we may consider palliative operative treatment in cases where bleeding or pain and sepsis are undermining the patient's strength.

Operative treatment with a view to removal of the tumour.—The suprapubic route is that of choice wherever the tumour be situated. It gives free access and permits of operation by sight as well as by touch. I think the vertical incision as satisfactory as the transverse, and it has the advantage of weakening the abdominal wall less. If more room be needed the rectus muscle on one or both sides can be divided. Peterson's rectal bag is not required, but Trendelenburg's position is advantageous. The bladder is first distended with fluid, which I prefer to air. No doubt from its weight it causes the bladder in some cases to fall back, but Trendelenburg's posture minimises this, and with fluid distending the bladder when the finger is introduced examination of the wall is easier. Air so quickly escapes that the bladder collapses and examination is not so satisfactory. In exposing the anterior aspect of the bladder the operator should keep close to the symphysis pubis and should open below the reflexion of the peritoneum. It is well to steady the bladder with a double sharp hook, and on incising the wall to make a decided plunge in with a sharp-pointed knife. Whenever the opening is made the finger should be introduced to prevent the solution from escaping. Then the margins of the opening should be caught with Kocher's forceps.

Removal of the tumour with scissors.—The mucous membrane should be snipped around its attachment and then the attachment of the tumour to the bladder-wall should either be snipped through or twisted and torn away gradually. The bleeding, as a rule, is not great, and usually it quickly ceases with hot water injection. I have never had any difficulty with bleeding, but if there was difficulty I would catch the vessels with forceps and leave them *in situ* for 24 or 48 hours. My experience is that satisfactorily to remove the tumour when it is a sessile one is very difficult, but we have at least the satisfaction of knowing that even imperfect removal although not curative yet delays the growth very markedly and prolongs the patient's life. This was well illustrated in Case 1; the operation was performed in 1895 and the patient lived until the end of 1899. The recurrence of bleeding was first noticed one year after operation. If the tumour were favourably situated it would be wise to remove a portion of the whole thickness of the bladder wall.

I demur to any attempts to remove growths per urethram in the female or through small openings, suprapubic or perineal, in the male. Free access must be had and the operator must cut wide of the disease if he

possibly can. In two cases I have operated suprapubically after recurrence, the first operation having been per urethram. Both of the suprapubic operations were successful—one eight years ago and the other three years ago—and both were cases of sessile papilloma.

After-treatment.—Primary union should not be aimed at. A tube may be put in and Cathcart's adaptation of the Sprengel pump may be applied. The bladder may thus be kept quite empty and the patient perfectly dry. At the end of 10 days the tube should be removed and the pump should be used only at night. Urine comes generally by the urethra in three weeks, but it may be necessary in the male to pass a bougie to hasten it. There is no objection to the patient sitting up in bed within a day or two after the operation—a matter of much importance in the cases of old persons. I have never had a permanent fistula result, and in only one case, that of a man accustomed to lift heavy weights, have I seen hernia follow the operation, and it was very slight. It came on in one year after the operation.

ENLARGED PROSTATE.

Enlargement of the prostate is so frequently the cause of bladder trouble, producing much discomfort and often great risk to life, that it bulks very largely in our minds as an important disease. To-night I propose to say nothing regarding the etiology or symptomatology but to discuss very shortly the methods of treatment chiefly in vogue at present for coping with the affection.

In the first place I think I may say that it is now generally recognised that to initiate a patient even temporarily into what is termed "catheter life" is a proceeding fraught with much danger and not uncommonly followed by loss of life. Secondly, I think it is also recognised that the chief risk is associated with the occurrence of sepsis, organisms being introduced at the time of catheterisation, and that such an accident may result notwithstanding every precaution which may be taken. Indeed, personally there is no class of surgical interference which causes me more anxiety than the passage of a catheter for the first time in a case of chronic incomplete retention, as the French term it, or what we know as an over-distended bladder due to enlargement of the prostate. An endeavour should always be made thoroughly to purify our hands and instruments and the meatus and anterior urethra of the patient and to have an area of asepsis around the parts just as in an operation elsewhere when the skin is unbroken. These precautionary measures are imperative, but other questions arise—viz., what catheter should be used? should the bladder be completely emptied? and should any mildly antiseptic solution be introduced after withdrawal of the urine? I would answer these queries thus. Use a red rubber catheter by preference, but if you fail with that use a silver catheter. I advise this primarily because both can be sterilised by boiling or heat. If the bladder be over-distended markedly—i.e., probably the contractile power lost—do not evacuate all the urine at once. If the bladder be not so markedly over-distended and contractile empty it com-

pletely but introduce a few ounces of warm boric lotion or boroglycerine in water. A gum elastic catheter is not good as it cannot be purified so certainly as either of the others. French rubber are better. For lubricant a convenient substance is eucalyptus and vaseline (1 in 6) in a collapsible tube. Later—that is, after catheterisation has been used for some time, perhaps by the patient—even if sepsis occur the risk is not so great, particularly if the bladder be contractile. One disadvantage of the continuous use of the red rubber catheter is that increased pain and other symptoms being present, a stone having formed, it may be missed. I therefore in such cases always sound the patient from time to time or use a silver catheter to draw off the urine. Not infrequently I have found the aggravated symptoms to be due to a stone.

A difficulty may arise after a time in the passage of the instrument and operative interference may be necessitated. Or it may be that a patient comes before us with such symptoms that something more than catheterisation is indicated. Many procedures have been advocated, but at present I think that only three hold the field—(1) castration and modified procedures based on the same theoretical grounds, vasectomy, and angio-neurectomy; (2) drainage, suprapubic or perineal; and (3) suprapubic prostatectomy.

I need not detain you with an account of the theory of castration, and I think it will be admitted by all from the large number of successful cases which have been brought before the profession from time to time that this operation is frequently most valuable. I do not trouble you with statistics further than to say that in the most recent paper with which I am acquainted a list of 159 cases is given which does not include either White's or Cabot's series. There were 13 deaths, and of 130 in which the result is stated 90 per cent. were improved after operation. Regarding vasectomy Wood gives a series of 193 cases. In 118 cases (67 per cent.) improvement occurred after operation. Statistics are proverbially untrustworthy and I give these figures merely to show that benefit accrues in certain cases after either operation. The mortality is not high, and neither operation *per se* is of any great danger, and in that particular perhaps we have a reason for the quick and somewhat general acceptance of the procedure by the profession. In all probability the benefit derived at first and occasionally very quickly is from decongestion of the prostate, but the continued improvement and return of voluntary power of micturition may be associated with decreased size of the prostate by atrophy.

Now, having admitted so much in favour of the operation, we may ask, Why does it sometimes fail, or why does complete recovery not ensue? I think that the explanation is due to the varying state of the prostate in different patients. Mr. Reginald Harrison classes the enlargement shortly under three heads which I may adopt: (1) enlargement mainly proceeding from blood engorgement (the prostate equal to a mass of erectile tissue); (2) the fibrotic prostate, consisting of a mass or masses of degenerated connective tissue and muscular fibre; and (3) an enlargement due to prostatic

tissue resembling an adenoma. Where decongestion alone can diminish the size of the prostate sufficiently then castration should *a priori* be successful. This may apply to the first of the varieties which I have enumerated, but if either of the other two conditions be present then it is not reasonable to expect relief after castration except in so far as decongestion alone can bring it about. It is in this, then, that the great difficulty in treatment of prostatic enlargement obtains. How can the prostatic condition be judged? Rectal examination does not suffice; measurement of the length of the urethra is fallacious; indeed, I know of no plan short of cystotomy by which we can even approximately gauge the state of the prostate. The cystoscope is no doubt often valuable as an aid to diagnosis in prostatic cases, but we cannot even with this tell how much of the enlargement is due to actual increase of prostatic tissue and how much is due to vascular engorgement. We are therefore driven to this position: that in a case of prostatic enlargement requiring something more than catheterisation castration or vasectomy may give benefit but not necessarily, and if we fail to give relief by such means further treatment is required. In giving advice to a patient we are hampered by sentimental consideration which, however, have a distinct influence with the patient and his friends. No doubt this difficulty decreases in proportion to the patient's age, but I have known a patient well over 70 years of age run away from hospital when the suggestion was made that his testes should be removed. This difficulty does not militate against vasectomy so much, but in spite of Mr. Harrison's views on the subject I think we must admit that hitherto success has attended castration more frequently than it has attended vasectomy. Regarding the cases in which it may be unhesitatingly recommended I would say that it is old men who have had relief by using a catheter for a time but in whom the difficulty of passing an instrument has become increasingly greater. In such cases congestion has probably increased and produced the greater obstruction. Castration, or it may be vasectomy, by causing decongestion may make catheterisation easier and if in addition atrophy of glandular tissue results we may have the need for catheterisation overcome. On the other hand, I am satisfied that in many cases such operations can scarcely be expected to be successful—namely, in those where the fibrotic prostate exists, or where a real tumour, though benign, of the prostate is met with. I show you three specimens removed from such cases, and very briefly I will detail the history of one of the patients.

CASE 4.—The patient, who was 58 years of age, had had for several years difficulty in, and frequency of, micturition. A double vasectomy was performed in November 1897, but the symptoms increased rather than diminished. He could pass no urine at all naturally. The catheter was required both day and night. The left lobe of the prostate was small, but the right per rectum was very large. I performed a suprapubic cystotomy in November 1898, and I found a very large right lobe. It was a fibro-adenoma which was easily enucleated. The patient made a good recovery and he does not now require the catheter.

No previous operation had been performed upon either of the other patients, but both had used a catheter for many months and in each hæmaturia was a prominent symptom. In both of these cases a suprapubic prostatectomy was carried out and both patients made excellent recoveries.

I do not dwell upon the advantage of this method in cases complicated by the presence of stone, but I wish to mention certain advantages which to my mind are of importance. 1. The operation immediately relieves the symptoms. 2. By resting the bladder the bleeding ceases and the patient gains much benefit from relief to pain and sleeplessness. 3. It admits of washing out the bladder very efficiently if that be needed. 4. The bladder being at rest it contracts and regains its contractile power and capability of expelling the urine.

The objections which have been urged against the method are : (1) danger to life ; (2) imperfect drainage ; and (3) that the prostate cannot be wholly removed. Regarding danger to life, such has not been my experience. I have only lost one case—the patient died 19 days after operation, death being due, as far as one could judge at the necropsy, to old-standing nephritis. It is necessary to judge whether when suprapubic cystotomy is performed it is right to proceed to remove the prostate at once or whether it should be done at a second operation when the patient is stronger. There is a disadvantage in delay, as the bladder contracts and operation is not so easy. Still, for the time the patient is relieved from dangerous symptoms and he regains strength.

With Cathcart's adaptation of the Sprengel pump drainage can be most satisfactorily attained. The bladder can be kept empty and the patient be kept dry. It is not necessary to remove the whole of the prostate. The chief cause of difficulty in micturition and in the passage of an instrument is as a rule either an enlarged middle lobe or a lateral lobe irregularly enlarged. Such masses can be removed.

The risk of permanent fistula after suprapubic cystotomy is because the natural canal has not been rendered patent. If the obstruction be removed fistula will not persist.

Lastly, in removal of a mass of the prostate it is in many cases easy, if you cut through the mucus membrane covering it, to enucleate a mass with the finger-nail or a periosteum-detacher. The pedunculated middle lobe may have a firm attachment at one point, and this can be safely cut through as it is fibrous and does not bleed to any extent.

[The lecture was illustrated by numerous experiments, naked-eye and microscopical, and also by instruments.]—*Lancet*, July 13, 1901.

DIFFICULTIES IN A HOMŒOPATHIC PRESCRIPTION.

BY W. S. SEARLE, A.M., M.D., BROOKLYN, N. Y.

(READ BEFORE THE BROOKLYN MEDICAL CLUB AND THE HOMŒOPATHIC MEDICAL SOCIETY OF KINGS COUNTY, N. Y.)

For the purposes of the present discussion we will assume that *Similia Similibus Curantur* is a law of nature, and, when competently applied, a broad and effective one. The limits of its sphere and its relations to other therapeutic laws we cannot now consider. But, as Captain Cuttle was fond of remarking, "The bearings of this here proposition lie in the application on't," so we may assert that the value of this or of any other law of nature depends upon our ability to make practical use of it. Now, it seems obvious to me, and I presume to all who have attempted to employ this law in the treatment of the sick, that it differs from most, if not all other, natural laws in respect to its feasibility of application. The laws of astronomy, of chemistry, of electricity, etc., those who are expert in them can and do apply without difficulty, and much to the advantage of mankind. Other laws of cure, too (assuming them to be laws), such as "contraria," "differentia," those of hydropathy, serum-therapy, etc., are utilized without serious difficulty. But no one can long attempt to practically apply the law of *Similia Similibus Curantur* without discovering that he has undertaken no holiday task. I assert what every honest and competent homœopath will admit when I say that failure in such attempts, even by experts, is more common than success.

That the latter occurs often enough to confirm our faith in the essential verity of this law I readily grant. I also admit that (within the proper sphere of this law) the fuller and more accurate our knowledge of the *Materia Medica*, the wider our experience, the greater our genius, the more frequent and satisfying our success. But still it must be owned that in practical, everyday employment of this law we meet with great, and at times insurmountable, difficulties. By careful and diligent study we do, not seldom, make brilliant cures. But why are these not the rule rather than the exception? And if they were the rule, how long would it be before the essentials of homœopathy would be universally adopted?

Now let us glance at some of the difficulties referred to, and try to discover how they may be overcome, or at least minimized, so that with more rapid strides we may approach our ideals.

The most important obstacle is found in our *Materia Medica*. Hahnemann entitled it the *Materia Medica Pura*, evidently expressing rather his conception of what it ought to be than its actuality.

But to-day, after a century of trial, its impurity is largely in evidence. So many have been the criticisms of this monumental work—monumental both for its verity and value, and for its falsity and fallaciousness—on the part of physicians whose knowledge of it and of its sources entitle their conclusions to respect, that I shall not attempt even a summary of them here. Nor shall I indulge in more than a single remark thereon.

To cite errors and pick flaws in our *Materia Medica* is easy, but contributes nothing to reform. Long ago I became convinced that attempts to sift the wheat from the chaff in the *Materia Medica* are dangerous as well as impracticable, and I believe that this is also the opinion of our greatest experts in this field.

But still I am sure that something must be done; somehow we must obtain a new and more modern *Materia Medica*, if we expect ever to have one that will commend itself to the medical profession in general, and prove reliable in our own daily practice. How can we wonder at the smiles and sneers of modern physicians as they turn the pages of the "Guiding Symptoms," or even of Allen's "Handbook." In an age when scholars of the highest character and attainments are criticising the grounds of Christian authority and belief, how can we hope to commend to the coming physician, even of our own school, such a *Materia Medica* as we now offer him?

It is simple truth to say that homœopathy is up against a wall here, and cannot progress until this obstacle is removed. How shall this be accomplished? All through the century just closed there have been occasional provings of new drugs, and sporadic attempts at re-proving some of the older ones. Quite recently the ophthalmic section of the American Institute has initiated a new crusade of this description, and the preliminary work of organization is under way. I hope it may prove a success, but, as I read the history of previous endeavors of this sort, I must say I fear it will not. It is an undertaking of such magnitude and importance that I do not see how any voluntary association can perform it in such a way as to commend the results it may attain to thoughtful men.

Consider for a moment. How many drugs could it properly handle in a year? Five or six would be a liberal estimate, and to complete the work would require twenty years at least.

Again, there are really few men in our ranks who are competent to conduct a proving as it should be made: so that, with all the professional and social duties that befall the ordinary physician, it does not seem possible to accomplish such a tremendous task in this way.

What, then, can be done? I would suggest that under the patronage of the American Institute a regular college of pathogenesis be established and endowed, where systematic work of this sort could be conducted by paid experts and provers, and thus a genuine *Materia Medica Pura* be compiled under the rigorous rules of modern scientific investigation. To some this scheme may appear Utopian. To me, however, it seems not only feasible, but the only feasible plan.

In these days, when the "gospel of wealth" is so powerfully preached and so brilliantly exemplified by Andrew Carnegie and others, there must be some of our multi-millionaires who can and will appreciate the immense value of a real *Materia Medica Pura*, and who would gladly endow such an institution, if the project were outlined and endorsed by some influential and responsible organization like the American Institute of Homœopathy.

Such endowment need be temporary only—so given as to revert to the donors at the close of a fixed and definite period. And the sale of such a work as could thus be produced would largely repay the interest on a sufficient endowment.

The whole homœopathic world should contribute to such an institution, for but one would be needed, and its work would endure for all time. I believe, too, that such a college would be favored by enlightened physicians of every name, for its object would be simply and only the development of the true relations of drugs to the human system, a knowledge of which relations is and always must be of basic value, irrespective of therapeutic theories or creeds. Certainly, in no way could men of wealth so directly and abundantly benefit mankind. With a *Materia Medica* thus evolved and recorded, the main obstacle to the progress of homœopathy, both as a science and an art, would be removed.

Can we not, as a society, do something to hasten such a medical millennium? At least we can memorialize the Institute, and urge an attempt to realize this ideal. Such an effort—world-wide and enthusiastic—would have a reflex influence upon ourselves. It would consolidate and energize our school, for there is nothing like ambitious strife after high and noble ideals to bind men together, develop what is best in them, and make their labors fruitful. To evolve such a *Materia Medica Pura* is the true mission of the homœopathic school, and its accomplishment would crown that school with undying honor and fame.

A second difficulty in homœopathic prescription arises from the fact that even a *Materia Medica Pura* demands interpretation in the light of physiology and pathology. Hints of what is possible in this direction are to be found in the works of Dunham, Farrington, and others. But the genius who is to expound and interpret pathogenesis, and give to the world a great philosophic *Materia Medica*, has yet to make his advent. I have faith, however, that "in the fulness of time" such a genius will appear. As for ourselves like John, the forerunner, we can only be criers in the wilderness, looking and longing for the coming of such a medical Messiah.

Other difficulties in homœopathic prescription inhere in and are inseparable from its symptomatic basis. Our patients may be too young, too ignorant, or too sick to describe their sensations fully and clearly.

The physician is compelled to ask leading questions, and the replies are often misleading. If we could credit and utilize clairvoyance in the examination of patients it might be very helpful, but for some reason it is unreliable.

Again, in many forms of disease no dependence whatever can be placed upon symptoms of a subjective nature, however clearly conceived or accurately reported. This is to a large extent true of all reflex maladies, and often also of diseases of the kidneys and heart.

No physician of even ordinary discernment would prescribe for the morning headache, due to chronic nephritis, upon the basis of the sensations in the head or their conditions. So, too, in chronic valvular disease,

the symptoms manifested by the heart are often entirely worthless as a basis for prescription. The pathologic status of the heart may be exactly what it has been for ten, twenty or more years. Nature has compensated the valvular deficiency by hypertrophy, and no symptoms are evoked until some other organ, like the liver or lungs or kidneys, is obstructed, and then the heart complains.

What more common, however, than to find the symptomist addressing his remedies to the complaining organ in accord with the sacred "totality" of Hahnemann? Do not misunderstand me, nor hastily decry me as a heretic. I know quite well the value of the "totality," and how, by means of it, we are often able to reach out into the darkness, where pathology stumbles about helplessly, and rescue sufferers who must otherwise be lost. But we must have an intelligent conception of what constitutes the "totality" in each case when we do employ it, as well as apprehend the situations in which reliance upon it is worse than futile.

Still another inherent difficulty appears in the multitude of drugs which act upon certain organs, *e.g.*, the head, the lungs and the bowels. Fully one hundred must be considered in prescribing for a headache, a cough or a diarrhœa.

The average memory staggers under such a task. Even in chronic cases of these varieties how often has flat failure mocked our best and most deliberate efforts. How much more in acute conditions, where time and circumstances combine against us, where the death-angel hovers near, and we must be speedy if we would wrest the victory from him. Then come the old perplexing questions of the dose, the single or alternate remedy, etc., which still further complicate the task of accurate and intelligent prescription. But these items are too old and worn for discussion here.

Such are some of the difficulties that confront the homœopathic prescriber. And yet, in spite of them all, homœopathy has lived and grown for more than a hundred years. What are its prospects for the twentieth century? It cannot be denied that there is ground for grave apprehension.

As you remember, this topic largely occupied the attention of the jubilee meeting of the State Society in this city. The very fact of such a discussion is significant. If our school were evidently and consciously advancing, no such subject would have found a place upon the program. Most speakers assigned to the discussion either avoided it or "whistled to keep their courage up."

The venerable and honored T. F. Allen alone met the issue squarely, and, as you know, took a pessimistic view which the common herd attributed to his failing health. I cannot so dismiss the incident. If the homœopathic school is advancing, where are the evidences thereof? Are our students increasing in number? Are our journals multiplying? Are conversions to our beliefs and practices as common as they were?

We must move, for to stand still is to retrograde. The world is advancing, and the old school can truthfully boast that it is moving also. It has

discovered new and valuable methods of producing local and general anesthesia, the use of organic extracts, serum-therapy, etc. True these are not exactly along our line, as a school. As has been remarked, the distinctive, characteristic, as well as hereditary, work of our school is the evolution of a genuine *Materia Medica Pura*; and what are we doing in that field to-day?

Ten, twenty, thirty years ago our physicians were, many of them, individual or associate provers, and our journals filled much of their space in recording the results of their self-sacrificing labor. Such labor and such records are rare now, and are becoming still more rare. We rest on our oars as if the journey were ended, ignobly content with our individual ease and profit. This drowsy giant of Homeopathy must arouse from his day-dreams or lag ignominious in the rear of medical progress. Which shall it be?—*Hahnemannian Monthly*, June 1901.

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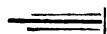
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THE PLAGUE IN ATHENS AS DESCRIBED BY
THUCYDIDES ; WAS IT PLAGUE AS
NOW UNDERSTOOD ?

II.

IN OUR LAST NUMBER, after giving the narrative of the Plague in Athens in Thucydides' own words as far as we could, we gave an analysis of the general characters of the disease which pointed to its nature as a virulent epidemic. We now proceed to give the specific symptoms, course, and progress of individual cases just to see what resemblances they have with those of any disease which prevailed before and after, or which may be seen to be prevailing in the present day.

1. Great despondency from the very beginning, and continuing throughout.
2. Violent heat in the head.
3. Redness and inflammation of the eyes.
4. Suffusion with blood (congestion) of the tongue and throat.
5. Unnaturalness and fœtor of the breath.
6. Sneezing and hoarseness.
7. Violent cough.
8. Vomiting of bile of all sorts. This was very distressing.
9. Ineffectual retching, producing violent convulsions.
10. Externally the body was not very hot.

11. The skin was not pale, but of a livid hue, inclining to red ; with an eruption of pustules and ulcers.

12. Sleeplessness.

13. Constant, intolerable restlessness.

14. Internal fever intense, which was aggravated by even the slightest covering. The sufferers could not bear to have on them the thinnest linen garment. They insisted on being naked, and wanted to be plunged into cold water.

15. Unquenchable thirst, not assuaged by drinking little or much.

16. The body not sensibly emaciated, strength apparently not exhausted, when death took place on the seventh to the ninth day.

17. When patients survived the above symptoms, and lived beyond the ninth day, the bowels were involved, there was ulceration in them, and a severe diarrhœa which caused exhaustion very often ending in death.

18. When death did not take place even from this cause there was often sloughing of the " privy parts," and of the fingers and toes, and sometimes of the eyes.

19. In some after recovery there was loss of memory, " a forgetfulness of all things and they knew neither themselves nor their friends."

We are told that there " were many *strange peculiarities* which characterized individual cases," but which the historian has unfortunately omitted to mention. It is impossible to guess what they were.

It will be noticed that no prodromal or promonitory symptoms are mentioned. That they were absent in every case is opposed to the experience of all epidemics. Even in the severest epidemics all the cases are not of such a *foudroyant* or *fulminant* character as to preclude the possibility of the occurrence of preliminary symptoms. But Thucydides was not a physician, and might be excused for not having mentioned them. Might it not be that some of the " other diseases," from which some people were said to be suffering and which were believed to have been absorbed in the new disease, were in fact prodromata of this disease ?

Among the symptoms given, it is noteworthy, that there is no mention of any other state of the mind than the " most

appalling despondency ;” no mention of loss of consciousness, of stupor, of delirium low and muttering or violent and maniacal, which are often found to be characteristic of fevers of the virulence described. What the historian meant by “violent heats in the head,” it is difficult to say. Was it actually sensible heat which was much greater in the head than in the rest of the body which, we are told, “was not so very hot to the touch ?” If so, was this unusual heat of the head compatible with perfect consciousness, with absence of stupor and delirium ? But if these symptoms had been actually present, would a keen observer like Thucydides, who himself was a sufferer from the disease, have failed or neglected to notice and include them in his description, which was intended to be a guide to future observers that they “may recognize the disorder should it ever reappear ?” We are, from these considerations, almost forced to conclude that stupor and delirium were not among the ordinary symptoms of the disease, as it prevailed in Athens, but might have been among the many peculiarities which characterized individual cases.

The eruption of pustules and ulcers on the skin seems to have been a common symptom. But we have no means of knowing whether it was an invariable symptom, and whether it observed any definite period for its appearance. And without this knowledge we cannot say, whether the disease was or was not an eruptive disease like small-pox or any other eruptive disease now known to us.

The mere mention of eruption of pustules and ulcers on the skin does not point to any involvement of the glands, and as the historian does not speak of these at all, it may be from his not having any knowledge of these structures as component parts of the body, we are not in a position to say if the glandular system was really affected. Though neither can we say that it was not. What he means by the “privy parts” which, with the extremities and the eyes, were among the last to be most seriously affected,—we have no means of ascertaining. Did the “privy parts” include the whole pubic region where the genitals proper are situated, as well as the upper and inner parts of the thigh ? In that case the historian might have had in his mind not only inflammation and sloughing of the penis and scrotum but also of the inguinal and femoral glands. But this is conjecture.

From the general characteristics and the symptoms and course of the disease, as we have them, it must be evident that it was an eruptive *febrile* disease of unusual virulence and extreme contagiousness and infectiousness. The only diseases prevalent in our time which bear resemblance to it are small-pox, typhus, and the plague as we now understand it. The question to determine is, which of these diseases resembles it most? A secondary question, the solution of which may help that of the first, is, whether any or all of these diseases were prevalent in the world before, during, and after the time of the pestilential disorder that prevailed in Athens and neighbouring places?

With reference to the first question it may be observed, that the most severe or malignant forms of both small-pox and typhus resemble one another very considerably, especially when the eruption of the former is suppressed or does not come out properly. Both have continued fever with stupor and delirium, both have very similar eruptions, both have affections of the chest in the form of bronchitis, or broncho-pneumonia, or pleuro-pneumonia, both have diarrhœa or dysentery or both and considerable hæmorrhages from the bowels, and lastly both have inflammatory swellings or buboes on the skin, forming abscesses or boils and blains. And it will thus be seen how both in their malignant forms may resemble the true bubonic plague.

Murchison has gone so far as to observe that "inflammatory swellings in typhus are interesting, as they constitute a connecting link between this disease and Oriental plague. The more the subject is studied, the more the conviction is forced upon the mind, that there is a strong resemblance between the two diseases in their causes, as well as in their symptoms, and that, in fact, typhus is probably the plague of modern times."

According to Hunter no two of the so-called specific diseases can simultaneously exist in the same patient. Our own Hahnemann endorsed this view so far as to build his theory of Homœopathy on it. But modern observation does not seem to lend countenance to Hunter's dictum. "There is now abundant evidence," says Murchison, "that any two of these diseases may run their course together, both eruptions in the case of the exanthemata, being present at one time." It has been observed by some French naval surgeons that cases have occurred in

which typhus and variola had run their courses together in the same persons; and Murchison had observed a similar case of co-existence of these diseases at the London Fever Hospital in 1862.

We do not possess any record, at least any reliable record, of the occurrence of any pestilence, anterior to the time of the so-called plague in Athens, that is, anterior to the fifth century before Christ. The only record, and that a vague one, of a disease of pestilential character, is that by Moses of the plague of boils and blains, or, as it was also called, the botch of Egypt, which takes us back as far as fifteen hundred years before the Christian era. It is thus described in *Exodus*, Chap ix, v. 8-10 :

“ And the Lord said unto Moses and unto Aaron, Take to you handfuls of ashes of the furnace, and let Moses sprinkle it toward heaven in the sight of Pharaoh. And it shall become small dust in all the land of Egypt, and shall be a boil breaking forth with blains upon man, and upon beast, throughout all the land of Egypt. And they took ashes of the furnace, and stood before Pharaoh; and Moses sprinkled it toward heaven; and it became a boil breaking forth with blains upon man, and upon beast.”

Divested of its mythic character, the story represents an account of a pestilential disorder at that ancient time, the most prominent feature of which was an eruption of boils and blains, and the advent of which was probably preceded and accompanied by a dust-mist not unusual in Egypt. Two things are noteworthy in this plague. One is that it affected both man and beast, and the other that it did not seize the Israelites. The escape of the Israelites was probably due to their living not in the city itself but beyond its walls or boundaries, and, therefore, in the more open and airy ground, and also perhaps to their observance of better hygienic rules than was done by the Egyptians.

From 1500 B. C. to 430 B. C. is a long period of over a thousand years. It cannot be that pestilential disorders were quiescent during so many centuries of time. But we have no recorded history, even of the fragmentary character of Moses's narrative, to tell us as to when and where they occurred and what was their nature. It is true that a sort of typhus fever attends the devastating courses of wars and famines, and that these latter have often raged in ancient times. But it would

be carrying conjecture beyond its legitimate limits were we to imagine that there must have been pestilences in those times. Again, it is true that for small-pox an antiquity has been claimed in India and in China which goes long before the Christian era, but it must be admitted as respects India that there is actually no chronology or even any clue to it, and as respects China that the accounts are too vague to command any respect for their reliability.

After the plague in Athens, the first mention of any pestilential disease is that by Rufus of Ephesus who flourished in the reign of the emperor Trajan (98-117 A. D.). This 'Fragment' of Rufus was discovered by cardinal Angelo Mai in the 44th book of the 'Collectanea' of Oribasius, and published by him in Rome, in 1831. The passage, as translated by Dr. Adams, is: "The buboes called pestilential are most acute and fatal, especially those which are seen occurring in Lybia, Egypt, and Syria, and which are mentioned by Dionysius Curtus. Dioscorides and Posidonius make mention of them in the plague which occurred in their time in Lybia; they say it was accompanied by acute fever, pain, and prostration of the whole body, delirium, and the appearance of large and hard buboes, which did not suppurate, not only in the accustomed parts, but also in the groins and armpits."

Now Dionysius Curtus is mentioned by Hermippus in his 'Lives of Eminent Men.' He must have therefore lived about the 125th Olympiad (280-277 B. C.) or before. We have thus a pestilential disorder occurring a century and a half after the plague in Athens and in the same places whence this latter originated. If the Posidonius of this passage is the stoic philosopher who flourished in the beginning of the first century before Christ, then there was bubonic plague about that time. If the Dioscorides, here mentioned, is the celebrated authority on *Materia Medica*, then the bubonic pestilence must have been prevalent also in the second century of the Christian era.

After this we have no reliable account of any pestilential disease till we come to the sixth century of the Christian era, in the latter half of which, in the reign of Justinian, one of the most virulent epidemics arose and desolated the Græco-Roman world. We have a vivid narrative of this plague from the pen of Procopius, who like Thucydides was an eye witness of the

pestilence, and who in his description has often borrowed the very language of Thucydides. We give the following account of this pestilence from Gibbon's "History of the Decline and Fall of the Roman Empire," as it has been based on Procopius :

"Æthiopia and Egypt have been stigmatized in every age, as the original source and seminary of the plague. In a damp, hot, stagnating air, this African fever is generated from the putrefaction of animal substances, and especially from the swarms of locusts, not less destructive to mankind in their death than in their lives. The fatal disease which depopulated the earth in the time of Justinian and his successors, first appeared in the neighbourhood of Pelusium, between the Serbonian bog and the eastern channel of the Nile. From thence, tracing as it were a double path, it spread to the east, over Syria, Persia, and the Indies, and penetrated to the west, along the coast of Africa, and over the continent of Europe. In the spring of the second year, Constantinople, during three or four months, was visited by the pestilence: and Procopius, who observed its progress and symptoms with the eyes of a physician, has emulated the skill and diligence of Thucydides in the description of the plague of Athens. The infection was sometimes announced by the visions of a distempered fancy, and the victim despaired as soon as he had heard the menace and felt the stroke of an invisible spectre. But the greater number in their beds, in the streets, in their usual occupation, were surprised by a slight fever, so slight, indeed, that neither the pulse nor the color of the patient gave any signs of the approaching danger. The same, the next, or the succeeding day, it was declared by the swelling of the glands, particularly those of the groin, of the arm-pits, and under the ear; and when these buboes or tumours were opened, they were found to contain a coal, or black substance, of the size of a lentil. If they came to a just swelling or supuration, the patient was saved by this kind and natural discharge of the morbid humor. But if they continued hard and dry, a mortification quickly ensued, and the fifth day was commonly the term of his life. The fever was often accompanied with lethargy or delirium; the bodies of the sick were covered with black pustules or carbuncles, the symptoms of immediate death; and in the constitutions too feeble to produce an eruption

the vomiting of blood was followed by a mortification of the bowels. To pregnant women the plague was generally mortal; yet one infant was drawn alive from his dead mother, and three mothers survived the loss of their infected fœtus. Youth was the most perilous season, and the female sex was less susceptible than the male; but every rank and profession was attacked with indiscriminate rage, and many of those who escaped were deprived of the use of their speech, without being secure from a return of the disorder. The physicians of Constantinople were zealous and skilful; but their art was baffled by the various symptoms and pertinacious vehemence of the disease; the same remedies were productive of contrary effects, and the event capriciously disappointed their prognostics of death or recovery. The order of funerals and the right of sepulchres were confounded; those who were left without friends or servants lay unburied in the streets, or in their desolate houses; and a magistrate was authorized to collect the promiscuous heaps of dead bodies, to transport them by land or water, or to inter them in deep pits beyond the precincts of the city. Their own danger, and the prospect of public distress, awakened some remorse in the minds of the most vicious of mankind; the confidence of health again revived their passions and habits; but philosophy must disdain the observation of Procopius, that the lives of such men were guarded by the peculiar favor of fortune or providence. He forgot, or perhaps he secretly recollected, that the plague had touched the person of Justinian himself; but the abstemious diet of the emperor may suggest, as in the case of Socrates, a more rational and honorable cause of his recovery. During his sickness the public consternation was expressed in the habits of the citizens; and their idleness and despondence occasioned a general scarcity in the capital of the east.

“Contagion is the inseparable symptom of the plague, which by mutual respiration is transfused from the infected persons to the lungs and stomach of those who approach them. While philosophers believe and tremble, it is singular that the existence of a real danger should have been denied by a people most prone to vain and imaginary terrors. Yet the fellow-citizens of Procopius were satisfied by some short and partial experience, that the infection could not be gained by the closest conversation;

and this persuasion might support the assiduity of friends or physicians in the case of the sick, whom in human prudence would have condemned to solitude and despair. But the fatal security, like the predestination of the Turks, must have aided the progress of the contagion ; and those salutary precautions to which Europe is indebted for her safety, were unknown to the government of Justinian. No restraints were imposed on the free and frequent intercourse of the Roman provinces ; from Persia to France the nations were mingled and infected by wars and emigrations ; and the pestilential odor which lurks for years in a bale of cotton, was imported by the abuse of trade into the most distant regions. The mode of its propagation is explained by the remark of Procopius himself, that it always spread from the sea-coast to the inland country ; the most sequestered islands and mountains were successively visited ; the places which had escaped the fury of its first passage were alone exposed to the contagion of the ensuing year. The winds might diffuse that subtle venom ; but unless the atmosphere be previously disposed for its reception, the plague would soon expire in the cold or temperate climates of the earth. Such was the universal corruption of the air, that the pestilence which burst forth in the fifteenth year of Justinian was not checked or alleviated by any difference of the seasons. In time its first malignity was abated and dispersed ; the disease alternately languished and revived ; but it was not till the end of a calamitous period of fifty-two years that mankind recovered their health, or the air resumed its pure and salubrious quality. No facts have been preserved to sustain an account, or even a conjecture, of the numbers that perished in this extraordinary mortality. I only find, that during three months five, and at length ten, thousand persons died each day at Constantinople ; that many cities of the east were left vacant, and that in several districts of Italy the harvest and the viutage withered on the ground. The triple scourge of war, pestilence, and famine, afflicted the subjects of Justinian, and his reign is disgraced by a visible decrease of the human species, which has never been repaired in some of the fairest countries of the globe."

(To be continued.)

THE LATE SURGEON GENERAL C. R. FRANCIS.

The pupils and admirers of Dr. Charles Richard Francis will be sorry to hear of his death, which melancholy event, as we learn from the *British Medical Journal*, took place at Spencer Park, London, S.W., on the 10th of August in his 81st year. Dr. Francis received his professional education at the Middlesex Hospital, and became a member of the Royal College of Surgeons of England and a Licentiate of the London Society of Apothecaries in 1843. In the same year he obtained the degree of M. B. of the London University. In 1844 he entered the Indian Medical Service and was posted to Bengal. Here he held a number of Civil and Military appointments. In 1853, he was appointed by the Government of India to investigate, along with Dr. Frank Pearson, the nature of the *Mahamarree*, which was raging as an epidemic in the hill districts of Kumaon and Gurwal, and found this disease to be identical with "bubonic plague," and wrote a valuable report thereon, which is perhaps lying hidden among the dusty records of the Indian Government.

In 1865 he held the appointment of Principal and Professor of Medicine at the Medical College of this Metropolis, and as such was First Physician to the College Hospital. He was very popular with the majority of the students of that institution, and did much to improve them in knowledge and to further their future welfare—acts which are rather rare now a days. Towards the close of his Indian Career he held successively the posts of Secretary to the Surgeon General, Deputy Surgeon General, and Officiating Surgeon General to the Government of India. He retired from the Indian Service with the honorary rank of Surgeon General on the 1st of September 1875. Dr. Francis experimented much with snakes and snake-poison with a view of discovering an antidote. He was for some time editor of the *Indian Medical Gazette*. He often times spoke in approving terms of our Journal, and was good enough to exchange the *Gazette* with it.* Thus, though a distinguished

*The following extract from the first review of our Journal in the *Indian Medical Gazette* (May, 1868) will, we doubt not, be read with interest: "Although we may decline to agree with him in the principles of his creed, we cannot but commend the spirit and perseverance which have induced Dr. Mohendro Lall Sircar, single-handed, to start a 'Journal of Medicine' in Calcutta, a periodical in which, although the "*similia similibus curantur*" law, and the infinitesimal posology of Hahnemann will be recognized at the most advanced points yet

member of the old school, principal of an orthodox college and editor of an orthodox journal, he had the generosity and catholicity to extend the right hand of fellowship to one who was professedly heterodox, and was editor of a journal with the avowed object of striking at the root of unreasoning orthodoxy.

He was a voluminous writer. He was the author of several books and pamphlets, such as "Sketch of Native Life in India," "The Indian Medical Officers' *Vade Mecum*," "Constitutional Syphilis," "Endemic Plague in India," "Enteric Fever in India," "Snake Poison," "Alcohol, chemically, physiologically and microscopically considered," "Alcohol:—A Compendium of Information on the Temperance Question," "Medical Women for India," "How to Preserve Health in India," &c., &c.

reached in the domain of Therapeutics (in the utterance of which sentiments Dr. Sircar enunciates his disbelief in all that he was taught at his *alma mater*), still, as his professed "object is simply and solely the advancement of Medical Science, and the diffusion of sound knowledge of the laws and conditions of health," we will cherish the hope that our author will grow wiser as he penetrates deeper, and that we may yet be enabled to welcome him back to the ranks which he has, temporarily only let us hope, and not irrevocably, deserted.

But Dr. Sircar's Journal is not devoted, exclusively, to the discussion of homœopathic questions. It deals with the "principles of hospital construction," and advances original and suggestive opinions on what should be done with the Medical College Hospital; it places before the public the experiences of intelligent Native gentlemen with regard to malarious fevers occurring in their districts; it glances at the Medico-Political questions of the day;—the efforts made by Sub-Assistant Surgeons to secure for themselves an improved official and financial position in society; the appointments of Sanitary Inspectors General and their value; the reformation of jails, and the establishment of an aide-memoire for India; and last, not least, it proposes to "publish, in *devanagari* character, the most approved Hindoo works on medicine, with translations of them into English." This last proposition, if successfully carried out, will supply a great want. So much of these writings is to be met with only in manuscript, that they are as a sealed book. A good English translation, such as an educated Bengalee Sub-Assistant Surgeon could furnish, would be invaluable to pure *savants* as well as to professional men; and we doubt not that, if Dr. Sircar will apply in the proper quarter, he will meet with the assistance which he solicits in the purchase of "good old reliable manuscripts." In closing this brief notice of Dr. Mohendro Lal Sircar's Journal, we confess we should wish to see it prosper in exact proportion as it keeps within the limits of rational medicine, and if its author wishes his bantling to be more generally fostered by the public, we think he would do well to make its contents more general, and to curtail the extent of its homœopathic disquisitions. Dr. Sircar will pardon us for these remarks. We make them in no spirit of bigotry, but from regard for a former pupil of the Medical College—for one who has attained so high a position amongst the *alumni* of that noble institution, and whom we earnestly desire to see diffusing the blessings of orthodox European medicine throughout India.

PUNSAVANA; OR THE CAUSING THE BIRTH OF A MALE CHILD.

BY DR. SURENDRA NATH GOSWAMI, B.A., L.M.S.,

(Continued from Vol. xx, No. 5, p. 192.)

Now, in dealing with the second part of our classification, we find that the doctrine of "comparative vigour of the generative elements," after their admixture in the uterus, stands foremost in our mind. The procreative elements supplied by the male and female generative organs, after their mingling in the uterus, compete with each other, by virtue of their inherent forces, for the supremacy. In this conflict, if the male molecules are the more numerous, a male offspring is the result; on the contrary, if the female molecules are more numerous, the result is a female. In case of sexual neutrality, which generally happens on the 11th and 13th days of the menses "we find a kind of hermaphroditism." (54-58).

54. पुरुषस्य तु यत् शुक्रं यत्ते स्त्रियाधिकं यदि ।

तदाकन्यां विजाः स्त्रीयाद्विपरीते पुमान् भवेत् ।

उभयोस्तुल्यशुक्रेण क्लीवं भवति निश्चितं ॥

साहचर्यभावेद तन्त्रम् ॥

55. रक्ताधिका भवेन्नारी भवेद्देतोधिकः पुमान् ।

उभयोः समतायान्तु नपुंसकमिति स्थितिः ॥

सारेदातिलक तन्त्रम् ॥

56. स्त्रियाः शुक्रेऽधिके स्त्री स्यात् पुमान् पुंसोऽधिके भवेत् ।

तस्माच्छुक्रविहङ्गाद्यैर्दृष्ट्यं स्निग्धञ्ज योजयेत् । अरूणदत्तः

54. If the procreating secretion of the female exceeds that of the male, a female child will be born; when the contrary takes place a male child will be born. When there is equality between both the secretions a hermaphrodite will certainly be born.

55. It is a law of nature that in the female there is predominance of the blood (menstrual), that is of the female procreating secretion; in the male there is predominance of the male secretion (Semen); in the hermaphrodite there is equality of the two.

56. If the secretion of the female predominates a female child is born: if that of the male, a male child is born. Hence for the increase of the secretions, aphrodisiacs and cooling substances should be provided.

We do not exactly know if these inherent forces mean the numerical strength of the procreative elements. But we can boldly affirm that the Hindus were the first to determine with mathematical precision, the ratio between the male and female factors. If the ratio of the male and female elements be 14 : 22, the result becomes a male child. This ratio is also found to support the law of cross heredity of sex. (59)

We do not know how our forefathers succeeded in making this calculation. It is probable that they knew, somehow or other, the chemical affinity of these two different generative elements with the inflammatory exudation of the uterus, and like De Bay* succeeded in determining that the proportion of vital constituents present, in each, varies with the quantity of the uterine secretion making the molecules of the ovum increase, and those of the sperms diminish. If those constituents be not the so-called nitrogen, it must be something kindred to it.

Thus the question of priority of discharge of the generative

57. कारणानुविधायित्वात् कार्याणां तत्त्वभावता

अतएव च शुक्रस्य बाह्याज्जायते पुमान्।

रक्तस्य स्त्री तयोः साम्ये ह्योवः शुक्रार्त्तवे पुनः ।—वाग्भटः

58. बाह्याद् बह्वात् सामर्थ्यलभ्यत्वाच्च पुं रेतो हि बलवदस्य स्त्री रजोऽभिभूय पुं गर्भस्य कारणतां याति।

59. द्वाविंशति रजोभागाः शुक्रमात्रा सत्तुर्दशः।

गर्भसंजननकाले पुं स्त्रिये सम्भवन्ति हि।

57. As the effect follows the cause and is therefore of the same nature with it, so from the predominance of the male secretion there is born a male, from the predominance of the female secretion there is born a female; from their equality a hermaphrodite is born.

58. बाह्याद् means बह्वात् सामर्थ्य लभ्यत्वाच्च i.e. owing to its greater bulk and greater strength in the competition when the male secretion of generation is more vigorous it overpowers the weaker menstrual discharge and causes the production of a male child.

59. If the ratio between the female and male elements stands at 22 : 14 then at conception a male child is produced.

* De Bay holds, that "a large proportion of nitrogen in the ovum occasions the development of a girl. If, on the contrary, the semen contains a great quantity of nitrogen, a male individual will result."

Schenk's Theory.

element is said to determine, according to this law of uterine secretion, to a certain extent, the sex of the child. We quote from *Dárubahi* the undermentioned couplets, in support of this view. (60)

From the above we are led to the important theory of the concentration of the semen and its influence upon the procreative elements. Morello holds that thin liquid semen is favourable to the production of females; thick semen produces males. According to Pflüger, "with thinner or thicker semen the average number can be more or less altered," thin semen producing greater number of females, thick semen, greater number of males.

We have already stated our reason as to how the semen becomes more or less concentrated by the amount of menstrual exudation present in the uterus. Now we quote below the Hindu authority, in support of Morello's doctrine. (61)

Thus we find, that (a) the presence of an ebb and flow of the uterine discharge on alternate days contributes much to make the semen variable in concentration; that (b) insemination on the 4th

60. स्त्रीपुंसयोः सुसंयोगे बद्धादौ विस्फुजेत् पुमान् ।

शुक्रं ततः पुमान् वीरो जायते बलवान् दृढः ॥

अथचेत् वनितापूर्वं विस्फुजेद्रक्तसंयुतम् ।

ततोऽरुणान्विता कन्या जायते दृढसंज्ञता ॥ अरुणदत्तः ॥

61. शुक्लासु चतुर्थं षष्ठाष्टमदशमं द्वादशं लक्षणासु—निशासु संक्रमे पुच्छसादिचिन्त्यत्वाद्देतु भावस्य तासु हि रात्राषात्तन्मल्ली भवति अन्यासु—शुक्लासु निशासु पञ्चमी सप्तमी नवमीषु कन्या जायते तदा हि शुक्रमल्ली भवति पूर्वोक्ताद्देतोः—(See ante)

60. In connexion with sexual union, if the discharge of semen happens prior to the discharge of the female procreative elements then a strongly built heroic male child is born. But if the discharge of the ovum and menstrual blood happens earlier then a robust beautiful female child is produced.

61. Conception on even nights, i.e., on the 4th, 6th, 8th, 10th, or 12th night brings forth a male child. For certain inscrutable reason on these nights the menstrual discharge becomes much diminished in quantity whereas on odd nights, i.e., on the 5th, 7th, and 9th nights conception of a female child takes place on which nights the semen becomes less for reasons aforesaid.

6th, 8th, 10th, or 12th night of the menses, when the uterine discharge is in a state of great aberration, results in the production of males; for the semen according to the law of concentration has on these days, no chance of getting diluted; that (c) insemination on the 5th, 7th, and 9th night on which the uterine discharge exceeds its normal quantity, and contributes much to the dilution of the semen, is often attended with female births.

The researches of Schroder are very much in the way of supporting this theory of alternate days, as advocated by *Arundatta*. His experiments on two groups of intelligent women who could report to him correctly the date of the last menses and the date of the conception, led him to the conclusion that the women that conceived—"10·08 days after menstruation," produced, on an average, a large proportion of males. But those that produced a greater number of females were known to conceive "9·76 days after." Although these experiments were originally meant to test Thury's theory of late fertilisation, it is fortunately found to confirm, instead of supporting Thury's theory, the Hindu doctrine of ebb and flow on alternate even and odd number of days. If a difference of 24 hours can lead to the production of such an important sexual change in the foetus, viz., substitution of male sex in place of the female, we cannot help making this bold conjecture, that there must be some physiological changes at work, in the human female system, that appear one day and disappear the very next. If these be not the so-called ebb and flow of the uterine secretion, we do not know what other things there can be at work.

The quantity of semen remaining always invariable, and the female elements of generation being likewise unmodified, the only factor that is found to vary, and upon which the concentration of semen chiefly depends, is the amount of inflammatory exudation present in the uterus, and which, in the opinion of John Hunter,* is an invariable incident taking place, for some days, even after the complete disappearance of the menstrual flow.

In Hindu medical science, the work of *Arundatta* is not a solitary instance, where the existence of an externally invisible

* "He (John Hunter) believed the decidua to be an inflammatory exudation which, on account of the stimulus of pregnancy, was thrown out all over the cavity of the uterus and soon formed a distinct lining membrane to it."—Playfair.

uterine secretion has been admitted ; for we find the same view indirectly put forth in the following extract from *Susruta*. (62)

CHAPTER VI.

THE PRACTICAL SIDE OF THE QUESTION.

As no direct experiments can be made upon living human subjects, the theories relating to the particular size and curvature of the embryonic area, as giving rise to a variety of differentiation of sex, can have no practical bearing upon the subject of reproduction. The theory of nitrogen can likewise have no scientific value, so far as the question of artificial influencing of sex is concerned. To determine the proportion of chemical constituents present in the ovum, or in the sperm, though not impossible in a living subject, is almost impracticable. The only practical form, to which this difficult problem can be reduced, is the subject of nutrition of the parents, especially, of the mother. It is the quality of the food-supply that governs, *in toto*, the determining factors of the sex of the future individual. By this influence alone, the quantity of the inflammatory exudation of the uterus, can be made to increase or decrease, at our option. It may be made to govern the ovarian products as well as the seminal discharge. In short, it acts as a nutritive basis upon which the character and sex of the future individual become moulded.

Professor Schenk of Vienna, from whom we have borrowed most of our observations on embryology, and to whom we are greatly indebted for the origin of this small treatise has given a practical shape to this difficult question, by establishing in his "Theory," the importance of diet, upon which, the artificial influencing of sex is made principally to stand. According to him, the animal food forms the principal factor that governs the origin of the male sex.

62. ऋतुस्तु द्वादश निशाः भवति दृष्टार्त्तवः ।

अदृष्टार्त्तवायस्तीत्ये केभाषन्ते ॥

62. For the first twelve nights (from the beginning of menstruation) the discharge becomes outwardly visible. But according to some there may be invisible menstruation.

(To be continued.)

EDITOR'S NOTES.

Deaths from Lightning.

Two deaths are reported from Sussex during the thunderstorm on July 6th. Both victims were agricultural labourers and were at work in the fields at the time the storm burst over the district. When the rain came on one sought shelter in a shed situated under some trees, the building having a corrugated iron roof. The lightning struck the building. The labourer was also struck and according to the evidence of the medical witness it was his opinion that the lightning left the deceased by a chain which hung out of his pocket and to which two knives were attached. Rigor mortis set in quickly. In the other case the victim was seeking shelter when he was struck down. He was found in a field drain. His clothes were smouldering. The skin on the right side of the face resembled the condition found in the second stage of burning. The body was scorched in places. Both deaths occurred within a few miles of each other in the Ashdown Forest district.—*Lancet*, July 20, 1901.

Tea Intoxication with Spinal Symptoms.

A paper dealing with an obscure and little known group of spinal symptoms arising from the abuse of tea was read by Dr. Alfred Gordon at the June meeting of the Philadelphia Neurological Society. He presented a patient, a woman, aged 31 years, who seven years previously had had an operation performed for some condition of the uterus. Since then she had contracted the habit of drinking tea to excess, sometimes 15 cups a day. Three months previously her present illness began with symptoms of fatigue and unsteadiness in walking. The knee-jerks were increased, sensation was altered, and hyperæsthesia was present in the lower extremities. The pupils were unequal and there was nystagmus. Romberg's symptom was present. Recently she had suffered from "spells of unconsciousness" lasting for a few moments. There was a feeling of weariness in the legs and the clinical picture was that of hysteria and of lateral sclerosis. Cases of this kind, says Dr. Gordon, are rare, and the possibility of contamination of the tea with lead in minute quantities should be borne in mind. In the discussion following the above communication Dr. D. J. McCarthy said that he had seen a case where the patient was accustomed to take as much as 10 cups of tea a day. In that case the symptoms pointed to sclerosis of the spinal cord.—*Lancet*, July 6, 1901.

Errors in the Diagnosis of Appendicitis.

Brewer (*Annals of Surgery*, May, 1901), in a recent communication to the new York Surgical Society alluded to the frequency with which errors are made in the diagnosis of intra-abdominal inflammations, and to the fact that in the majority of instances of this kind the error has consisted in mistaking atypical forms of appendicitis for other morbid conditions. Full reports are given of 11 cases in which, in the course of eighteen months, Brewer made the mistake of regarding as appendicitis conditions which, upon operation or necropsy, were shown to be other and unsuspected pathological processes. These cases are classified as follows: In 2 the symptoms were found to be due to renal calculus; in 4 to diseases of the uterine appendages; in 1 to sarcoma of the ileum; in 1 to acute suppurative pancreatitis; and in 2 to general sepsis. In the discussion on this paper, McCosh stated that those engaged in gynaecological work are often much puzzled to distinguish between suppurative conditions of the tubes and ovaries and those of the appendix. Sometimes, it was asserted, it is quite impossible to make a correct diagnosis before the abdomen has been opened, and even then it may be difficult to determine the primary seat of the trouble. It was pointed out by this speaker that in cases of general suppurative peritonitis the appendix is usually presumed to be the origin of the infective mischief. In male subjects this, in his opinion, is probably the case in 19 instances out of 20; but in the female there is not this almost constant relation, as the pelvic organs or the stomach are at times found to be at fault.—*Brit. Med. Journ.*, July 20, 1901.

Pneumothorax Produced by Sneezing.

Stiller (*Wien. med. Woch.*, May 4th, 1901) was summoned to a young man, whom he had treated shortly before for nervous dyspepsia. He was half-sitting, half-lying on the bed, and groaning loudly. An hour previously a violent sneeze had produced the most unbearable abdominal pain. He had been brought home in a cab, and had dragged himself up to the third storey, though suffering greatly. Inspection revealed that the whole of the upper part of the abdomen was enormously distended by a large tumour. Over this area there was dulness to percussion. This proved to be the liver, which had become luxated from the diaphragm and forced downwards and inwards, and at the same time rotated forwards until its lower border reached the umbilicus. The right side of the thorax was distended and immovable. Over it percussion was resonant but not tympanitic, and vocal

fremitus was abolished. There was amphoric breathing everywhere, but no metallic phenomena or Hippocratic succussion. The heart's apex was in the left anterior axillary line. The pain quickly yielded to an injection of morphine, and on the following day the liver had returned almost to its normal position. A week later there were no traces of pneumothorax or of anything abnormal. There was never any pleural effusion. Dislocation of the liver by the pressure of a pneumothorax is probably unique, and for its production it must be assumed that the communication between the lung and the pleural cavity was of a valvular nature, so that air escaped during inspiration into the pleural cavity, but was prevented from returning during expiration. When the intrapleural pressure reached a certain point the valve would no longer be able to open, and the fact that the air was absorbed so rapidly proves that this mechanical closure was soon replaced by an organised cicatrix. The lungs were certainly healthy. Except for the slight digestive disturbances the man had never been ill, and neither before nor after the accident could anything be discovered amiss. As a sneeze was the cause the pneumothorax must have occurred during an expiratory effort. The case somewhat resembles one in which the pneumothorax was produced in a healthy man by a fit of laughter (*Munch. med. Woch.*, No. 41, 1899).—*Brit. Med. Journ.*, July 20, 1901.

Poisoning by the External Application of Bismuth Subnitrate.

Mühlig (*Munch. med. Woch.*, April 9th, 1901) states that though chemically pure subnitrate of bismuth is absolutely nontoxic when given internally even in such large doses as 5 drachms daily, its application to wounds is not as safe as is usually supposed. The older reported cases of poisoning by bismuth, given internally, were due to its contamination with arsenic or lead, chiefly the former. The following cases illustrate the possible danger of bismuth as a surgical dressing. On December 14th a man was burned deeply on both forearms and hands, on the right arm, and over the right clavicle and right side of the neck. The wounds were dressed with lin. calcis in the first instance, and a few days later was covered with bismuth subnitrate in powder under a dry dressing. On January 5th slight salivation and a bluish-black line on the gums appeared. On January 10th the whole of the buccal mucosa, the tongue, the palate, and the uvula were of a blue-grey colour, swollen, and in parts superficially ulcerated. Salivation became marked, the mouth could be opened only with

great difficulty and pain. The general condition remained satisfactory, although the diet was necessarily restricted. Urine and digestion were normal. Although the bismuth dressing was abandoned on the first appearance of symptoms, no improvement in the stomatitis took place until the wound, which was covered with granulations tipped with bismuth, was scraped with a sharp spoon. By February 2nd there remained only a greyish discoloration of the gums, and this disappeared shortly afterwards. The teeth were unaffected. (2) A man, aged 34, scalded both legs and feet with hot water on November 8th. The same treatment was employed as in the previous case. On November 20th the breath became fœtid, there was copious salivation, a bluish-black discoloration of the gums, the tongue, and the palate, and superficial ulceration of the mucous membrane. The stomatitis had disappeared by January 1st, but not before the wounds had been scraped. The bismuth subnitrate employed in each case was obtained from different makers, and in each case proved on analysis to be chemically pure. Dreesmann, of Cologne, has also observed toxic symptoms from bismuth dressings.—*Brit. Med. Journ.*, July 20, 1901.

Yerba Mate and Afternoon Tea.

A cherished British institution is, it seems, in danger, if not of abolition at all events of considerable, and possibly of fundamental, modification. "At the 'five-o'clock,'" says Dr. Dedet in the *Archives de Medecine Navale* for June, "the American herb *maté* is about to become the substitute of tea, or of all other refreshing beverages." How and when the popular refection known as "five o'clock tea" first came into vogue is not so clear as might, perhaps, be expected. As in some other institutions of lesser, and of greater, importance the origin of the agreeable function is more or less wrapped in obscurity. According to some authorities lawn tennis and the practice of indulging in the cheering cup of an afternoon stand to each other in the relation of cause and effect, whereas in the opinion of other equally positive observers the custom of post-meridian tea drinking is referable to the more remote period when the lately resuscitated game of croquet began to invade our grass-plots. However this may be, Dr. Dedet desires to sound a note of warning before the substitution which he announces shall have become an irrevocable fact. It was in 1874, while serving in the French navy, that he made the acquaintance of *maté* for the first time. His ship was stationed at Montevideo and in the *salons* of that lively South American city it was then usual to inhale the vapour of a simmering (*mijotant*) infusion of the leaves

from a *bombilla* or narrow-mouthed vessel through a tube ending in a globular mouthpiece. The apparatus apparently circulated amidst the company from mouth to mouth, just as the pipe of peace used to circulate when Red Indian braves were assembled in conclave. At that time maté was unknown in Europe, even as a medicament, but since then, according to Dr. Dedet, it has become known as a first-class *agent d'épargne* and cardiac tonic, with possibly febrifuge qualities as well. An analysis made by M. D. Parodi shows that in 1000 parts of yerba maté (*ilex paraguayensis*) there are 40 of caffeannic acid, seven of caffeine, with smaller quantities of resin, fat, and essential oil. In people who suffer from diseased kidneys the employment of maté is likely to give rise to hæmaturia. Dr. Dedet had recently a patient at Martigny-les-Bains, an ambassadorial attaché, aged about 40 years, who was accustomed to drink an infusion of 39 grammes of maté in 1000 of water "to enable him to work at night." The diplomatist was a martyr to oxaluria, and by a process of exclusion his disability was unmistakably brought home to the infusion. At once he abandoned the habit, whereupon his symptoms improved, and at the end of 12 months he was able to report himself completely free from all nephritic trouble. "I think," says Dr. Dedet in conclusion, "that like coffee, tea, &c., yerba maté should be interdicted in persons whose kidneys are defective. If this plant should enter further into European alimentation cases in support of mine will no doubt be recorded. I publish mine to open the road." —*Lancet*, July 20, 1901.

The Quantity of Water in Foods.

It is not very generally realised how much water there is in solid food. Certain it is that no natural food is without water, varying in amount from 5 to 97 per cent., or only 3 per cent. short of pure water itself. Milk, of course, must be taken as the type of a complete food and yet it contains, even straight from the cow, very nearly 90 per cent. of water, or, to be more accurate, from 87 to 88 per cent. That is to say, more than four-fifths of milk consist of water, and as this is the condition in which it is naturally furnished the inference is that the fats, the sugars, and the proteids were intended to be taken in a diluted state. Indeed, the composition of other foods would teach the same thing, although, paradoxical as it may seem, some solid foods contain more water than does milk. This is especially true of vegetables and fruits. Thus the turnip contains over 90 per cent. of water, the cabbage nearly the same amount, and the cucumber and the vegetable marrow about 95 per cent.; whilst amongst fruits the

strawberry contains nearly 90 per cent. of water, the apple 82 per cent., and grapes 80 per cent. Even the various meats used as food contain an amount of water far in excess of the amount of solid constituents. Thus three-fourths of beef and mutton consist of water. The housekeeper, perhaps, scarcely realises when consulting the butcher's price-list that three-fourths of the meat are water and are paid for with the rest at the rate of a shilling or more per pound. Lamb contains less water, namely 64 per cent., pork still less, 60.9 per cent., and bacon only 22.3 per cent. It would appear that as the flesh foods increase in the amount of fat the proportion of water, as a rule, diminishes. Coming to birds, the flesh of the fowl and duck contains about 70 per cent. of water and that of the pigeon 75 per cent., while the flesh of the goose contains only 38 per cent., the last being another example of the fat increasing with a corresponding diminution in the proportion of water. Fishes contain from 40 to 80 per cent. of water. The egg, one of the most powerful of nutritives, contains 65.5 per cent. of water, the white consisting of 86 per cent. and the yolk of 50.9 per cent. The latter, of course, is the more nourishing part. As a rule foods containing a small proportion of water are not fit for human consumption until they are cooked, which commonly means reducing them to a digestible state by adding water and boiling or baking, and so when they are actually partaken of they contain a good percentage of water. Wheat flour, for example, contains only 12 per cent. of water, while bread contains nearly 50 per cent. It would appear to be necessary, therefore, that food should be in a decidedly moist condition before it is fit for use, and thus water plays a rôle in food which at first sight perhaps does not seem evident. Bacteria cannot live or act except under a wet environment and chemical change under absolutely dry conditions is impossible; therefore without moisture life would cease and the great vital processes would come to an end.—*Lancet*, July 20, 1901.

The Cerebral Localisation of Melancholia.

In a paper which appears in the *Journal of Mental Science* for July Dr. Bernard Hollander makes an attempt to determine the precise area of the brain which is affected in melancholia. Jensen and Tigges had found that the frontal lobes do not show atrophy or loss of weight in melancholia, and hence Dr. Hollander begins by looking for its site in other parts of the brain. Starting from the premise that in melancholia a limited area of the brain is involved because the disease is assumed to be a "morbid condition of the emotional life,

affecting an area which is not concerned in intellectual processes," the conclusion is reached that this area is situated in the parietal lobe "particularly the *angular and supra-marginal gyri*." At any rate, the disease is regarded as having its starting-point and as being most intense in these convolutions. It is claimed that in cases of cranial injury involving the parietal eminence and the underlying convolutions—viz., the angular and supra-marginal, as distinguished from other parts of the brain—melancholia is likely to follow. A characteristic case of this was that of a man, aged 28 years who at the age of 17 years fell from a carthorse and sustained an injury of the right parietal bone (its lower portion) in the form of a depression from a thrust received by the pole of the cart. He was carried home unconscious. The scalp wound healed readily but a depression of the skull remained. Striking mental changes followed: "Patient shunned all association with men, sat for hours brooding in a corner, had daily paroxysms of weeping," and took to bed. He was irritable and would not obey his parents. Dr. Stetter, who was consulted, decided to trephine and the depressed bone was removed. "After the operation the patient returned to social life again and became quite normal." Another case, one of cerebral tumour (cyst) with melancholia was described by Bernhardt as "an extraordinary pathological condition of the brain." The patient was a woman, aged 63 years, who for years had suffered from melancholia with paroxysms of anxiety which increased in intensity so that she made several suicidal attempts. She developed also various hypochondriacal delusions. At the necropsy a cyst was found pressing on the left parietal lobe beneath the dura mater and adherent to it. It produced depression of the greater part of the parietal lobe for about two centimetres below its level. The cyst was of about the size of a hen's egg and filled with serum. There were no entozoic remains in the cyst. Several cases of symmetrical atrophy, or thinning of the parietal bones, are known in association with melancholia. In one of these, reported by Rudolf Bloch, a woman, aged 86 years, was the subject of melancholia and of symmetrical thinnings of the parietal bone, the areas affected by the thinning being 45 millimetres in diameter on the right side and 40 millimetres on the left side. There was a suicidal history in the family. Thirty years previously she had been in an asylum for melancholia and had made several suicidal attempts. The external table and the diploe of the bones were rarefied and thinned out, the bone here being practically reduced to inner table only. In 1854, at a medical meeting in Wurzburg, Virchow showed the skull of a man

whose chief symptoms were pain, giddiness, and intense melancholy, "and whose facial expression had been observed to be always one of supreme sadness." On both parietal bones, exactly corresponding to the eminences, the bone was so thin as to be perfectly translucent when held against the light. In several cases cited there was a coexistence of "word-blindness" with melancholia, especially in lesions of the left side of a brain. Dr. Hollander attempts to give a rational explanation of these facts by stating that the "emotion of fear" is located in the parietal lobe (central part), and that its lesions produce psychical disturbances allied to melancholia.—*Lancet*, August 3, 1901.

Mental Disorders Following Influenza.

It is now a well-recognised fact that mental disorders are more frequent after influenza than after any of the other zymotic diseases. In the April number of the *Journal of Mental Science* Dr. George A. Rorie, medical superintendent of the Cumberland and Westmorland Asylum, gives an account of insanity following influenza, with statistics of 68 cases. An increase in the admissions of patients suffering from melancholia during or after epidemics of influenza has been reported from several of the asylums of this country—e.g., Hanwell, Birmingham, Nottingham, and Edinburgh. On examining the statistics of admission into the Cumberland and Westmorland Asylum Dr. Rorie finds a similar increase in admission of melancholic and suicidal patients during the general epidemics of influenza. "The increase in the admission of melancholic patients is specially marked in the years 1891, 1893, and 1896, while there is a marked increase in the admission of suicidal cases during the years 1890, 1893, and 1895." During the period from 1890 to 1900 68 cases of insanity, in which influenza was the chief predisposing or exciting cause, were admitted to the Cumberland and Westmorland Asylum. Besides these, says Dr. Rorie, there was other numerous cases, some of which were partly due to influenza, but these have not been included in the paper which takes account only of those wholly due to influenza. Of the 68 cases there were 34 males and 34 females. Taking the males it was found that the average age on admission was 43·8 years. Six were between the ages of 61 and 70 years, and 10 were between the ages of 21 and 30 years. Among the females the average age was 49·5 years, which is rather older than the males. The greatest number were between the ages of 41 and 50 years. The question as to the exact time of the appearance of mental symptoms after an attack of influenza was difficult to answer. In some cases it seemed to follow directly on the

attack of influenza or at an interval of a few days, in other cases weeks or months seemed to have intervened. In many cases the patient's friends stated that the patient had never been the same mentally after an attack. These results concur with those published 10 years ago by Dr. Leledy in his work on "Influenza and Mental Disorder." Most commonly an interval of from one to three months would elapse between the attack of influenza and the commencement of melancholia, mania, or other form of mental disorder. A notable feature was the large proportion of suicidal cases in both mania and melancholia. Thus of a total of 34 male patients 17 were suicidal, 16 of these being cases of melancholia and one of mania. Of the 34 female patients there were 19 suicidal cases, of which 14 had melancholia and five mania. The type of melancholia varied a good deal: in some cases it was simple melancholia with listlessness and loss of appetite, in others there was a certain amount of mental confusion and impairment of memory, with a frequent tendency to stupor, especially in the female cases. In some cases the patients were resistive, had delusions of persecution or poisoning, and refused to take food. Hallucinations were noted in five females and three males; these were usually of hearing, but hallucinations of sight and feeling were also met with. The cases of acute mania among the men were all at a considerable period after the attack of influenza; among the females, on the other hand, two out of four cases of acute mania followed soon, if not directly, after the attack. One of the male patients, aged 42 years, rapidly developed symptoms of general paralysis after influenza and died seven months after admission. Dr. Rorie concludes that mania is the least favourable form of insanity following influenza as regards prognosis. In patients already insane the effect of an attack of influenza led to little change in the majority of cases, but two cases of delusional insanity under Dr. Rorie's care became markedly worse, giving freer utterance to delusions of persecution, and one case of melancholia became distinctly more depressed.—*Lancet*, July 6, 1901.

CLINICAL RECORD.

Foreign.

NOTES OF A CASE OF PNEUMONIA.

By ALEX. H. CROUCHER, M.D. Edin., F.R.C.S.E.

FOR the successful termination of the following case of pneumonia, I feel I am greatly indebted to a hint contained in a book written by Dr. George Murray of Newcastle-on-Tyne—how, will appear later.

Margaret F., æt. 15, a pupil in a school, sickened with influenza on April 3rd; she was one of about six others who also failed with the same complaint. The temperature on April 3rd was 101°F. in the evening. On April 7th it rose to 105, but there were no physical signs in the chest. On April 8th there were evidences of pleuropneumonia of the lower lobe of the left lung. From April 8th to the evening of April 12th the illness followed the ordinary course of pleuro-pneumonia of the left lung; as complications there were bronchitis and pleurisy on the right side and slight effusion in the pericardium. The temperature ranged from 104°F. to 106.2°F., pulse 120—140 beats per minute, and respiration 40—50.

The usual treatment was carried out, and on the evening of April 12th the crisis occurred, the temperature came down to normal, and all the symptoms became ameliorated, and to those in charge it seemed as if all cause for anxiety was removed; the patient had a good night and slept, perhaps too well.

At 8 a.m. on April 13th the patient was still doing well. At 12 noon, I again visited the patient, and expected to find continued progress, but it was not so, for I found the temperature was 104°F. there were great dyspnoea and general cyanosis, an anxious expression, respirations 50 per minute, pulse 140, and the patient in gasps complained that she could not get her breath.

The cough was short and feeble, and evidently useless as far as clearing the lungs of secretion was concerned. Oxygen gas which had been used all along, on and off, was used again in larger doses, but did not do the slightest good.

It occurred to me that the trouble now super-added to the pneumonic condition was collapse of the lung, by reason of the non-removal of the accumulated secretions; not necessarily large, but due to the feeble respirations, caused partly by the patient's weakness, and partly by the pleuritic affection, making both breathing and coughing very painful and consequently inefficient.

These accumulated secretions cause collapse by shutting up the

tubes through which the air enters the air vesicles ; no air entering, the residual air becomes gradually exhausted and the affected parts of the lung become reduced to a condition as if it had never breathed ; the plugs of secretion in the bronchioles act as valves, the air is expelled at each expiration, but does not enter on inspiration. Any want of power to fill the air cells of the lung with air may lead to collapse of the lung. Something required to be done, and that quickly.

I had, quite lately, read Dr. Murray's book, *Rough Notes on Remedies*, and the tenth article in that book is headed, "Turpentine vapour in pneumonia and bronchitis ;" the whole book is full of practical hints and is well worth reading. I determined to try the turpentine vapour as an inhalation at once, so having procured a Maw's inhaler, a teaspoonful of ordinary turpentine was put into it and the requisite amount of hot water added, the patient (a most obedient one) was requested to draw the vapour into the lungs ; as might be expected, a violent cough ensued and expectoration followed, two whiffs were enough at a time and the inhaling was repeated every two hours for four times, and then less often until the remedy was no longer required.

The same evening the temperature was normal, the dyspnoea and cyanosis gone, respirations and pulse became normal and convalescence progressed uninterruptedly afterwards.

I may say that I myself took a whiff and felt quite asthmatic for the rest of the day.

In my opinion this treatment piloted the patient from a condition of great danger to one of safety.

The remedy seemed a violent one to use in a patient weakened by such a severe illness ; but, sometimes, "diseases desperate grown, by desperate appliance are relieved or, not at all."—*Monthly Homœopathic Review*, July 1, 1901.

Gleanings from Contemporary Literature.

MILK CONTAMINATION AND HOW BEST TO PREVENT IT.

BY D. S. HANSON, M.D., CLEVELAND, OHIO.

In order to fully appreciate the painstaking work necessary to prevent milk contamination, it is requisite that all the details of its production and transportation be thoroughly understood, as well as the element of time taken in handling it, taken into consideration, for it is well known that milk of a very good quality soon deteriorates even where the most perfect practical methods are used for its preservation.

I say practical methods, for milk can be kept sterile for a considerable length of time (probably several months), but details necessary are such that milk for general consumption cannot be distributed in that condition. This subject has been discussed by medical societies, boards of health, etc., very widely. No doubt the agitation of the subject has done much good, yet only to a very limited extent has anything of a true practical nature been accomplished. The immensity of the business (the estimated number of cows in the United States being 5,500,000) would warrant much more attention than it has received.

The subject may conveniently be arranged under two divisions, namely : 1st, methods of contamination ; 2d, prevention of contamination.

1st. Methods of contamination can be subdivided into :

(a) Diseases affecting cow, her food and surroundings.

(b) Contamination while being milked and gotten ready for shipment at the dairy.

(c) While being transported and delivered to consumer.

(d) After milk is in consumer's possession.

2d. Prevention of contamination covers a wide field, and can only anywhere near approach perfection by constant, intelligent supervision from the pasture field, watering place, and food trough to its final delivery to the consumer, and after it is in the consumer's hands by general education of the masses in hygiene in general.

In order to more fully put before you the immensity of this traffic, I wish to quote some statistics showing amount of milk used in some of our large cities. It is said that 1,250,000 quarts are used in New York city daily. That would mean milk from about 155,000 cows, and that about 31,000 milkmen have been employed in milking these cows, that 62,000 hands have been used in the work, and that most of them are wet with milk and that a very small per cent have been washed before milking, a fact to which I am sorry to be obliged to call your attention.

In regard to diseases liable to affect the cow, of course tuberculosis holds first place, and in some localities seems to be present to an almost alarming extent.

H. E. Annett's experiments show tubercle bacilli were present in the milk used in the English cities in from 3 to 30 per cent of tests made (inoculation of animals was the test used), and in butter in from 10 to 47 per cent, but that they do not live in butter more than twelve days. Out of twenty-eight samples of oleomargarine they were present but once. This latter observation points to the fact that butter used in the manufacture of oleomargarine is usually more than twelve days old, and the moral would be "eat oleomargarine." It is a well-known fact that a cow can be affected with tuberculosis and yet give non-tubercular milk, in fact, is not liable to do so unless extensive general tuberculosis be present or else tuberculosis of teats, milk glands, or udder exists. It would seem the sensible thing to do, to examine milk and destroy the animal only when she gives milk containing tubercle bacilli, instead of the expensive, not to say questionable, proceeding of slaughtering them because they react to the tubercle serum.

Is there great liability to contract tuberculosis from the use of milk that occasionally contains tubercle bacilli? Or putting it more strongly, is tuberculosis disseminated in the human being by use of tuberculous cow's milk? This opens up a wide field, and no doubt opinions would be very different, yet by a little observation much can be learned.

Tuberculosis is hardly more prevalent or fatal in the United States and England than in Germany, while milk is used raw very largely in the two former, and is very generally sterilized by boiling in the latter country. Woodhead carefully examined 127 children that died of tuberculosis and found the mesenteric glands involved in 100 of them. Osler relates the instance of a milk dealer whose herd was giving tuberculous milk, and withdrew his milk from the market and fed it to a litter of pigs, which all became affected with intestinal tuberculosis. Is there any reason to believe that young children are less susceptible than young pigs? The answer would be modified by two propositions.

We have no direct evidence of such a result, and the bacillus found in cow's milk is not exactly the same as that found in human tuberculosis. Sparsely settled regions, regions of an elevation above 5,000 feet, are almost exempt from this disease. While they probably use as much milk as other people, no doubt immunity plays an important part here, but hardly to such an extent. The American Indian and negro races are especially prone to this disease, although they use a much smaller amount of milk than the white race. Primary intestinal tuberculosis is uncommon in the human being, which would not be the case if it was at all generally produced by milk consumption. Hydrochloric acid or gastric juice is very destructive to the bacillus, and probably under ordinary conditions few, if any, pass through the stomach alive, and provided some do they hardly would infect from the intestine if the mucous membrane were intact. We do not deny the possibility of infection, but the practical question is, how large a proportion of those using tuberculous milk become affected? This can only be answered, in the light of facts before us, by saying that there

are not nearly as many as alarmists would have us believe. The writer's opinion, based upon years of observation is, that children who consume much milk during early life, say up to fifteen years of age, are better equipped physically, have less skin and digestive diseases, and really have a lower mortality from all causes, tuberculosis included, than those deprived of this useful food. Cattle are, of course, liable to acute diseases, but fortunately give but little milk during an attack, and the same may be said of most chronic diseases, tuberculosis being the main exception. The disease of milk glands known as garget is quite common, and the average farmer thinks such milk not sufficiently bad to warrant throwing it away, and into the can it goes. Once seeing a farmer emptying a few quarts of this kind into a can, I protested, telling him that it might easily cause some bottle-fed infant to become sick, or, still worse, some sick one to die. He said so small an amount in the whole mass would do no harm, besides he received such a pittance for his milk that he could not afford to throw it away.

New milk (that is the secretion of milk glands for first two or three days after dropping calf) is not generally considered fit for use, but quite generally goes in to enrich the mass sent to cities.

Milk, sometimes even deadly in its virulency, is many times the result of food taken. The most notable example of this is the disease known as "milk sickness," and associated with the disease in cattle known as "the trembles." It has been demonstrated experimentally that an ounce of butter or cheese or four ounces of the meat from these animals, either raw or boiled, given to a dog daily for six days, will produce death. Although the exact cause of the disease is not definitely known, it is generally admitted to be due to some plant consumed by the animal. I believe new countries and certain localities only suffer from this disease.

Digestive diseases are most common during periods of drouth, when cattle are obliged to eat weeds and plants which they avoid when grass is abundant. Marked examples of the influence food has on the quality of milk are those of the milk and butter being scented by the leeks eaten by the cows in certain localities in the Western States, and the unwholesomeness of milk given by cows in cities when fed on cabbage leaves and other garbage. These are so well known that I hesitate to mention them. Those fed on malt and refuse from breweries and distilleries come under the same heading. There should be care of the cows not only in regard to feed and water, but also in relation to construction of stables, ventilation, light, bedding, condition especially of stable floor (the latter often are afloat on a reeking mass of filth in latter part of winter and spring months, and in such cases the cow is usually pretty well plastered). This is not overdrawn, but is supported by facts altogether too numerous. Can milk from cows in such surroundings be a good article?

Probably the most prolific source of contamination occurs while milking is being done. Who ever heard of a milkman washing his hands before milking? Most of them wait until they are actually doing the work, and then wash them in the milk. Many times I have seen four dimples in

froth on milk in milk pails, two where the streams of milk penetrated, the other two, dark brown ones, where milk drips from hands. Many milkmen think they cannot milk without first wetting teats with milk and consequently persist in this filthy habit. Water is not usually handy to milk-yards or stables, consequently udders and teats rarely get washed.

The cow is a restless brute, especially inclined to be uneasy while being milked, occasionally kicks and now and then plants a filthy foot in the milk pail. (Such milk is usually strained before going into the can.) Hair, insects, hay, straw, blood, pus, particles of earth and more or less cow manure constitute the most common foreign elements that get in at this time. It is estimated that New York city consumes thirty tons of cow manure a year in milk. It cannot be entirely prevented, but can be very much lessened, if only more care were taken and result of the evil more generally appreciated. Also, at this time milk often has been made deadly by contamination with disease germs. They get into the milk in a variety of ways; most common, perhaps, is that by washing utensils with infected water. Scarlet fever, diphtheria and typhoid are no doubt often produced by the use of milk so infected. Scarlatina is unknown in countries where cow's milk is not used for food, which many authorities think is due to this source of transmission being absent. A common source of trouble comes from improper cleansing of utensils at this time, minute particles adhering to cans, pails, etc., being a nidus for rapid bacterial development in fresh milk that is added. Milk may contain enough butter fat, solids, be strained, and yet be very bad from this cause alone. The various preservatives such as borax, salicylates, paraldehyde, etc., are all bad and should never be used, and at the best are only a "premium on shiftlessness." Their use cannot always be laid at the producer's door.

Methods of contamination while in the hands of the shipper and dealer are mainly from removal of covers from cans for various purposes, thereby allowing particles of dust and various other minute substances to gain entrance, and quite generally such substances favor bacterial development. To illustrate the care necessary, I once saw some trainmen unloading empty cans at a country road crossing. Beside the track was a ditch filled with stagnant water and mud, and they thought they were having lots of fun by slamming cans in this ditch to see how dirty they could make them. Such a can could again be made fit to put milk in after more work than the average producer would care to give. The rate of multiplication of bacteria under favorable circumstances is such that it would stagger the uninitiated. In very good milk as it comes from the udder, the number is usually from three to four thousand per cubic centimeter, while milk as delivered in the city usually contains from three to six millions per cubic centimeter. After the milk is in the hands of consumer, the methods of entrance of impurities are many; the most common are from unclean dishes, keeping in living rooms, exposure to disease germs and lack of proper facilities to keep correct temperature. Good work in the line of inspection is now being done by the Philadelphia Pediatric Society. A committee has been

appointed consisting of a bacteriologist, a veterinarian and a physician. They are noting all the conditions under which milk is obtained. Any farmer or milk producer that allows a thorough inspection once a month is given a certificate if the milk comes up to the standard fixed by the society. This plan at least has the right method in vogue, and will accomplish much good if faithfully carried out.

I understand at the present time the milk inspectors of New York city are appointed under civil service rules, and only the one passing best examinations are chosen. Since this rule has been in force the relation of the producers and inspectors has been cordial, for the former are sure of fair treatment. Many of our smaller cities are making more or less abortive attempts at milk inspection, principally relying on penalties enforced on the producers when milk does not contain enough solids and butter fat, nothing whatever being done to keep out impurities.

2d. Methods of prevention of contamination that might and should be faithfully and earnestly carried out are many. Hygienic laws that are useful generally are especially useful here, and when more generally understood milk inspection will be greatly simplified. Common honesty would do much to better matters, but unfortunately many individuals are not willing to sacrifice time, work and profits for the sake of keeping conscience clear.

A man that has had his training entirely in the city and has no practical knowledge of farming in general and milk industry in particular, be he ever so well educated, is not the man for this work, for the farmer will find in about one minute that he does not understand the business, and will only listen to his suggestions in a spirit of derision and let the advice, as the old adage is, "go in one ear and out the other."

The man that will sit on a milkyard fence with high collar and patent leather shoes, and ask the farmer if his cows will bite, is not the man to gain the latter's confidence and co-operation.

The above description of the man not wanted also suggests the man necessary for proper work here. A man educated, cleanly in habits, faithful and honest, and willing and anxious to observe every detail and, so far as possible, correct every evil is the man needed.

What has he to do? See that milk is not shipped when contagious disease exists on premises, see that cows have proper food and water, and are healthy, that stables are properly cleaned, lighted and ventilated, cows properly bedded and not confined too continuously, that hands, teats and udders are clean, that the *dry process* be used in milking, that milk utensils are properly cleaned, that no filthy or diseased milk is emptied into can, that a proper strainer is used, that no old milk is emptied into the fresh, that no chemical preservatives are added, that milk is properly cooled before can is covered, that cans are not opened on trains, that the milk does not stand around depots for several hours after being delivered before milk peddlers come to take it away, and that the peddlers do nothing to *improve its quality*, and he might extend his good offices even into the home of the consumer to good advantage.

Examinations for germs aside from tubercle would not be necessary if the foreign substances were kept out. It is not that the producers and handlers of milk do not understand these matters generally pretty well, but they are careless about their proper enforcement, they do not fully realize the great disaster that might easily follow carelessness or dishonesty in any minor detail.

The trite saying, "Eternal vigilance is the price of liberty," might apply here if changed to "Eternal vigilance is the price of pure milk."—Columbus Medical Journal.—*Scientific American Supplement*, July 6, 1901.

AN ADDRESS ON THE COMBATING OF TUBERCULOSIS IN THE LIGHT OF THE EXPERIENCE THAT HAS BEEN GAINED IN THE SUCCESSFUL COMBATING OF OTHER INFECTIOUS DISEASES.

Delivered at the Second General Meeting of the British Congress on Tuberculosis on July 23rd.

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The task with which the Congress will have to busy itself is one of the most difficult, but it is also one in which labour is most sure of its reward. I need not point again to the innumerable victims tuberculosis annually claims in all countries, nor to the boundless misery it brings on the families it attacks. You all know that there is no disease which inflicts such deep wounds on mankind as this. All the greater, however, would be the general joy and satisfaction if the efforts that are being made to rid mankind of this enemy, which consumes its inmost marrow, were crowned with success. There are many, indeed, who doubt the possibility of successfully combating this disease, which has existed for thousands of years and has spread all over the world. This is by no means my opinion. This is a conflict into which we may enter with a surely-founded prospect of success, and I will tell you the reasons on which I base this conviction. Only a few decades ago the real nature of tuberculosis was unknown to us; it was regarded as a consequence, as the expression, so to speak, of social misery, and as this supposed cause could not be got rid of by simple means people relied on the probable gradual improvement of social conditions and did nothing. All this is altered now. We know that social misery does indeed go far to foster tuberculosis, but the real cause of the disease is a parasite—that is, a visible and palpable enemy which we can pursue and annihilate just as we can pursue and annihilate other parasitic enemies of mankind.

Strictly speaking, the fact that tuberculosis is a preventable disease ought to have become clear as soon as the tubercle bacillus was discovered and the properties of this parasite and the manner of its transmission became known. I may add that I, for my part, was aware of the full significance of this discovery from the first, and so will everybody have been who had convinced himself of the causal relation between tuberculosis and the tubercle bacillus. But the strength of a small number of medical men was inadequate to the conflict with a disease so deeply rooted in our habits and customs. Such a conflict requires the cooperation of many, if possible of

all, medical men, shoulder to shoulder with the State and the whole population, and now the moment when such cooperation is possible seems to have come. I suppose there is hardly any medical man now who denies the parasitic nature of tuberculosis, and among the non-medical public, too, the knowledge of the nature of the disease has been widely propagated. Another favourable circumstance is that success has recently been achieved in the combating of several parasitic diseases and that we have learned from these examples how the conflict with pestilences is to be carried on. The most important lesson we have learned from the said experience is that it is a great blunder to treat pestilences according to a general scheme. This was done in former times. No matter whether the pestilence in question was cholera, plague, or leprosy, isolation, quarantine, useless disinfection were always resorted to. But now we know that every disease must be treated according to its own special individuality and that the measures to be taken against it must be most accurately adapted to its special nature, to its etiology. We are entitled to hope for success in combating tuberculosis only if we keep this lesson constantly in view. As so extremely much depends just on this point I shall take the liberty to illustrate it by several examples.

The pestilence which is at this moment in the foreground of interest, the bubonic plague, may be instructive to us in several respects. People used to act upon the conviction that a plague patient was in the highest degree a centre of infection, and that the disease was transmitted only by plague patients and their belongings. Even the most recent international agreements are based on this conviction. Although, as compared with formerly we now have the great advantage that we can, with the aid of the microscope and of experiments on animals, recognise every case of plague with absolute certainty, and although the prescribed inspection of ships, quarantine, the isolation of patients, the disinfection of infected dwellings and ships, are carried out with the utmost care, the plague has, nevertheless, been transmitted everywhere, and has in not a few places assumed grave dimensions. Why this has happened we know very well, owing to the experience quite recently gained as to the manner in which the plague is transmitted. It has been discovered that only those plague patients who suffer from plague-pneumonia—a condition which is fortunately infrequent—are centres of infection, and that the real transmitters of the plague are the rats. There is no longer any doubt that in by far the majority of the cases in which the plague has been transmitted by ocean traffic the transmission took place by means of plague among the ship rats. It has also been found that wherever the rats were intentionally or unintentionally exterminated the plague rapidly disappeared; whereas at other places where too little attention had been paid to the rat plague the pestilence continued. This connexion between the human plague and the rat plague was totally unknown before, so that no blame attaches to those who devised the measures now in force against the plague if the said measures have proved unavailing. It is high time, however, that this enlarged

knowledge of the etiology of the plague should be utilised in international as well as in other traffic. As the human plague is so dependent on the rat plague it is intelligible that protective inoculation and the application of antitoxic serum have had so little effect. A certain number of human beings may have been saved from the disease by that, but the general spread of the pestilence has not been hindered in the least.

With cholera the case is essentially different; it may under certain circumstances be transmitted directly from human beings to other human beings, but its main and most dangerous propagator is water, and therefore in the combating of cholera water is the first thing to be considered. In Germany, where this principle has been acted on, we have succeeded for four years in regularly exterminating the pestilence (which was introduced again and again from the infected neighbouring countries) without any obstruction of traffic.

Hydrophobia, too, is not void of instruction for us. Against this disease the so-called protective inoculation proper has proved eminently effective as a means of preventing the outbreak of the disease in persons already infected, but of course such a measure can do nothing to prevent infection itself. The only real way of combating this pestilence is by compulsory muzzling. In this matter also we have had the most satisfactory experience in Germany, but have at the same time seen that the total extermination of the pestilence can be achieved only by international measures, because hydrophobia, which can be very easily and rapidly suppressed, is always introduced again year after year from the neighbouring countries.

Permit me to mention only one other disease, because it is etiologically very closely akin to tuberculosis, and we can learn not a little for the furtherance of our aims from its successful combating. I mean leprosy. It is caused by a parasite which greatly resembles the tubercle bacillus. Just like tuberculosis, it does not break out till long after infection and its course is almost slower. It is transmitted only from person to person, but only when they come into close contact, as in small dwellings and bedrooms. In this disease, accordingly, immediate transmission plays the main part; transmission by animals, water, or the like is out of the question. The combative measures, accordingly, must be directed against this close intercourse between the sick and the healthy. The only way to prevent this intercourse is to isolate the patients. This was most rigorously done in the Middle Ages by means of numerous leper-houses, and the consequence was that leprosy, which had spread to an alarming extent, was completely stamped out in Central Europe. The same method has been adopted quite recently in Norway, where the segregation of lepers has been ordered by a special law. But it is extremely interesting to see how this law is carried out. It has been found that it is not at all necessary to execute it strictly, for the segregation of only the worst cases, and even of only a part of these, sufficed to produce a diminution of leprosy. Only so many infectious cases had to be sent to the leper-houses that the number of fresh cases kept regularly diminishing from year to year. Consequently the stamping-out

of the disease has lasted much longer than it would have lasted if every leper had been inexorably consigned to a leper-house, as in the Middle Ages, but in this way, too, the same purpose is gained, slowly indeed, but without any harshness.

These examples may suffice to show what I am driving at, which is to point out that in combating pestilences we must strike the root of the evil and must not squander force in subordinate ineffective measures. Now the question is whether what has hitherto been done and what is about to be done against tuberculosis really strikes the root of tuberculosis so that it must sooner or later die. In order to answer this question it is necessary first and foremost to inquire how infection takes place in tuberculosis. Of course, I presuppose that we understand by tuberculosis only those morbid conditions which are caused by the tubercle bacillus. In by far the majority of cases of tuberculosis the disease has its seat in the lungs, and has also begun there. From this fact it is justly concluded that the germs of the disease—i.e., the tubercle bacilli—must have got into the lungs by inhalation. As to the question where the inhaled tubercle bacilli have come from, there is also no doubt. On the contrary, we know with certainty that they get into the air with the sputum of consumptive patients. This sputum, especially in advanced stages of the disease, almost always contains tubercle bacilli, sometimes in incredible quantities. By coughing and even speaking it is flung into the air in little drops—i.e., in a moist condition—and can at once infect persons who happen to be near the coughers. But then it may also be pulverised when dry, in the linen or on the floor for instance, and get into the air in the form of dust. In this manner a complete circle, a so-called *circulus vitiosus*, has been formed for the process of infection from the diseased lung, which produces phlegm and pus containing tubercle bacilli, to the formation of moist and dry particles (which in virtue of their smallness can keep floating a good while in the air), and finally to new infection if particles penetrate with the air into a healthy lung and originate the disease anew. But the tubercle bacilli may get to other organs of the body in the same way and thus originate other forms of tuberculosis. This, however, is a considerably rarer case. The sputum of consumptive people, then, is to be regarded as the main source of the infection of tuberculosis. On this point, I suppose, all are agreed. The question now arises whether there are not other sources, too, copious enough to demand consideration in the combating of tuberculosis.

Great importance used to be attached to the hereditary transmission of tuberculosis. Now, however, it has been demonstrated by thorough investigation that though hereditary tuberculosis is not absolutely non-existent it is nevertheless extremely rare, and we are at liberty in considering our practical measures to leave this form of origination entirely out of account. But another possibility of tuberculous infection exists, as is generally assumed, in the transmission of the germs of the disease from tuberculous animals to man. This manner of infection is generally regarded nowadays as proved and as so frequent that it is even looked upon by not a few as

the most important, and the most rigorous measures are demanded against it. In this Congress also the discussion of the danger with which the tuberculosis of animals threatens man will play an important part. Now, as my investigations have led me to form an opinion deviating from that which is generally accepted, I beg your permission, in consideration of the great importance of this question, to discuss it a little more thoroughly.

Genuine tuberculosis has hitherto been observed in almost all domestic animals, and most frequently in poultry and cattle. The tuberculosis of poultry, however, differs so much from human tuberculosis that we may leave it out of account as a possible source of infection for man. So, strictly speaking, the only kind of tuberculosis remaining to be considered is the tuberculosis of cattle which, if really transferable to man, would indeed have frequent opportunities of infecting human beings through the drinking of the milk and the eating of the flesh of diseased animals. Even in my first circumstantial publication on the etiology of tuberculosis I expressed myself regarding the identity of human tuberculosis and bovine tuberculosis with reserve. Proved facts which would have enabled me sharply to distinguish these two forms of the disease were not then at my disposal, but sure proofs of their absolute identity were equally undiscoverable, and I therefore had to leave this question undecided. In order to decide it I have repeatedly resumed the investigations relating to it, but so long as I experimented on small animals, such as rabbits and guinea pigs, I failed to arrive at any satisfactory result, though indications which rendered the difference of the two forms of tuberculosis probable were not wanting. Not till the complaisance of the Ministry of Agriculture enabled me to experiment on cattle, the only animals really suitable for these investigations, did I arrive at absolutely conclusive results. Of the experiments which I have carried out during the last two years along with Professor Schutz of the Veterinary College in Berlin I will tell you briefly some of the most important.

A number of young cattle which had stood the tuberculin test, and might therefore be regarded as free from tuberculosis, were infected in various ways with tubercle bacilli taken from cases of human tuberculosis; some of them got the tuberculous sputum of consumptive patients direct. In some cases the tubercle bacillus or the sputum was injected under the skin, in others into the peritoneal cavity, in others into the jugular vein. Six animals were fed with tuberculous sputum almost daily for seven or eight months; four repeatedly inhaled great quantities of bacilli, which were distributed in water and scattered with it in the form of spray. None of these cattle (there were 19 of them) showed any symptoms of disease and they gained considerably in weight. From six to eight months after the beginning of the experiments they were killed. In their internal organs not a trace of tuberculosis was found. Only at the places where the injections had been made small suppurative foci had formed, in which few tubercle bacilli could be found. This is exactly what is found when dead tubercle bacilli are injected under the skin of animals liable to contagium.

So the animals we experimented on were affected by the living bacilli of human tuberculosis exactly as they would have been by dead ones; they were absolutely insusceptible to them. The result was utterly different, however, when the same experiment was made on cattle free from tuberculosis with tubercle bacilli that came from the lungs of an animal suffering from bovine tuberculosis. After an incubation-period of about a week the severest tuberculous disorders of the internal organs broke out in all the infected animals. It was all one whether the infecting matter had been injected only under the skin or into the peritoneal cavity or the vascular system. High fever set in and the animals became weak and lean; some of them died after from one and a half to two months; others were killed in a miserably sick condition after three months. After death extensive tuberculous infiltrations were found at the place where the injections had been made and in the neighbouring lymphatic glands, and also far-advanced alterations of the internal organs, especially of the lungs and the spleen. In the cases in which the injection had been made into the peritoneal cavity the tuberculous growths which are so characteristic of bovine tuberculosis were found on the omentum and peritoneum. In short, the cattle proved just as susceptible to infection by the bacillus of bovine tuberculosis as they had proved insusceptible to infection by the bacillus of human tuberculosis. I wish only to add that preparations of the organs of the cattle which were artificially infected with bovine tuberculosis in these experiments are exhibited in the museum of pathology and bacteriology.

An almost equally striking distinction between human and bovine tuberculosis was brought to light by a feeding experiment with swine. Six young swine were fed daily for three months with the tuberculous sputum of consumptive patients. Six other swine received bacilli of bovine tuberculosis with their food daily for the same period. The animals that were fed with sputum remained healthy and grew lustily, whereas those that were fed with the bacilli of bovine tuberculosis soon became sickly, were stunted in their growth, and half of them died. After three and a half months the surviving swine were all killed and examined. Among the animals that had been fed with sputum no trace of tuberculosis was found, except here and there little nodules in the lymphatic glands of the neck and in one case a few grey nodules in the lungs. The animals, on the other hand, which had eaten bacilli of bovine tuberculosis had, without exception (just as in the cattle experiment) severe tuberculous diseases, especially tuberculous infiltration of the greatly enlarged lymphatic glands of the neck and of the mesenteric glands, and also extensive tuberculosis of the lungs and the spleen.

The difference between human and bovine tuberculosis appeared not less strikingly in a similar experiment with asses, sheep, and goats, into whose vascular systems the two kinds of tubercle bacilli were injected.

Our experiments, I must add, are not the only ones that have led to this result. If one studies the older literature of the subject, and collates the

reports of the numerous experiments that were made in former times by Chauveau, Gunther and Harms, Bollinger, and others, who fed calves, swine, and goats with tuberculous material, one finds that the animals that were fed with the milk and pieces of the lungs of tuberculous cattle always fell ill of tuberculosis, whereas those that were fed with human material did not. Comparative investigations regarding human and bovine tuberculosis have been made very recently in North America by Smith, Dinwiddie, Frothingham, and Repp, and their result agreed with that of ours. The unambiguous and absolutely conclusive result of our experiments is due to the fact that we chose methods of infection which excluded all sources of error, and carefully avoided everything connected with the stalling, feeding, and tending of the animals that might have a disturbing effect on the experiments. Considering all these facts, I feel justified in maintaining that human tuberculosis differs from bovine and cannot be transmitted to cattle. It seems to me very desirable, however, that these experiments should be repeated elsewhere in order that all doubt as to the correctness of my assertion may be removed. I wish only to add that, owing to the great importance of this matter, our Government has resolved to appoint a commission to make further inquiries on the subject.

But, now, how is it with the susceptibility of man to bovine tuberculosis? This question is far more important to us than that of the susceptibility of cattle to human tuberculosis, highly important as that is too. It is impossible to give this question a direct answer, because, of course, the experimental investigation of it with human beings is out of the question. Indirectly, however, we can try to approach it. It is well known that the milk and butter consumed in great cities very often contain large quantities of the bacilli of bovine tuberculosis in a living condition, as the numerous infection-experiments with such dairy products on animals have proved. Most of the inhabitants of such cities daily consume such living and perfectly virulent bacilli of bovine tuberculosis, and unintentionally carry out the experiment which we are not at liberty to make. If the bacilli of bovine tuberculosis were able to infect human beings, many cases of tuberculosis caused by the consumption of alimenta containing tubercle bacilli could not but occur among the inhabitants of great cities, especially the children. And most medical men believe that this is actually the case. In reality, however, it is not so. That a case of tuberculosis has been caused by alimenta can be assumed with certainty only when the intestine suffers first—i.e., when a so-called primary tuberculosis of the intestines is found. But such cases are extremely rare. Among many cases of tuberculosis examined after death I myself remember having seen primary tuberculosis of the intestine only twice. Among the great post-mortem material of the Charité Hospital in Berlin 10 cases of primary tuberculosis of the intestine occurred in five years. Among 933 cases of tuberculosis in children at the Emperor Frederick's Hospital for Children Baginsky never found tuberculosis of the intestine without simultaneous disease of the lungs and the bronchial glands. Among 3104 post-mortem examinations of tuberculous

children Biedert observed only 16 cases of primary tuberculosis of the intestine. I could cite from the literature of the subject many more statistics of the same kind, all indubitably showing that primary tuberculosis of the intestine, especially among children, is a comparatively rare disease, and of the few cases that have been enumerated it is by no means certain that they were due to infection by bovine tuberculosis. It is just as likely that they were caused by the widely-propagated bacilli of human tuberculosis, which may have got into the digestive canal in some way or other—for instance, by swallowing saliva of the mouth. Hitherto nobody could decide with certainty in such a case whether the tuberculosis of the intestine was of human or of animal origin. Now we can diagnose the two. All that is necessary is to cultivate in pure culture the tubercle bacilli found in the tuberculous material and to ascertain whether they belong to bovine tuberculosis by inoculating cattle with them. For this purpose I recommend subcutaneous injection which yields quite specially characteristic and convincing results. For half a year past I have occupied myself with such investigations, but owing to the rareness of the disease in question the number of the cases which I have been able to investigate is but small. What has hitherto resulted from this investigation does not speak for the assumption that bovine tuberculosis occurs in man.

Though the important question whether man is susceptible to bovine tuberculosis at all is not yet absolutely decided, and will not admit of absolute decision to-day or to-morrow, one is nevertheless already at liberty to say that, if such a susceptibility really exists, the infection of human beings is but a very rare occurrence. I should estimate the extent of infection by the milk and flesh of tuberculous cattle and the butter made of their milk as hardly greater than that of hereditary transmission, and I therefore do not deem it advisable to take any measures against it. So the only main source of the infection of tuberculosis is the sputum of consumptive patients and the measures for the combating of tuberculosis must aim at the prevention of the dangers arising from its diffusion. Well, what is to be done in the direction? Several ways are open. One's first thought might be to consign all persons suffering from tuberculosis of the lungs whose sputum contains tubercle bacilli to suitable establishments. This, however, is not only absolutely impracticable but also unnecessary. For a consumptive who coughs out tubercle bacilli is not necessarily a source of infection on that account so long as he takes care that his sputum is properly removed and rendered innocuous. This is certainly true of very many patients, especially in the first stages, and also of those who belong to the well-to-do classes and are able to procure the necessary nursing. But how is it with people of very small means? Every medical man who has often entered the dwellings of the poor, and I can speak on this point from my own experience, knows how sad is the lot of consumptives and their families there. The whole family have to live in one or two small, ill-ventilated rooms. The patient is left without the nursing he needs because the able-bodied members of the family must go to their work. How can the necessary cleanliness be secured under such circumstances? How is such a helpless patient to remove his sputum so that it may do no harm? But let us go a step further and picture the condition of a poor consumptive patient's dwelling at night. The whole family sleep crowded together in one small room. However cautious he may be the sufferer scatters the morbid matter secreted by his diseased lungs every time he coughs and his relatives close beside him must inhale this poison. Thus whole families are infected. They die out and awaken in the minds of those who do not know the infectiousness of tuberculosis the opinion that it is hereditary, whereas its transmission in the case in question was due solely to the simplest processes of infection, which do not strike people so much because the

consequences do not appear at once, but generally only after the lapse of years. Often under such circumstances the infection is not restricted to a single family, but spreads in densely inhabited tenement houses to the neighbours, and then, as the admirable investigations of Biggs have shown, in the case of the densely peopled parts of New York, regular nests or foci of disease are formed. But if one investigates these matters more thoroughly one finds that it is not poverty *per se* that favours tuberculosis, but the bad domestic conditions under which the poor everywhere, but especially in great cities, have to live. For, as the German statistics show, tuberculosis is less frequent, even among the poor, when the population is not densely packed together, and may attain very great dimensions among a well-to-do population when the domestic conditions, especially as regards the bedrooms, are bad, as is the case, for instance, among the inhabitants of the North Sea coast. So it is the overcrowded dwellings of the poor that we have to regard as the real breeding-places of tuberculosis; it is out of them that the disease always crops up anew, and it is to the abolition of these conditions that we must first and foremost direct our attention if we wish to attack the evil at its root and to wage war against it with effective weapons. This being so, it is very gratifying to see how efforts are being made in almost all countries to improve the domestic conditions of the poor. I am also convinced that these efforts, which must be promoted in every way, will lead to a considerable diminution of tuberculosis. But a long time must elapse ere essential changes can be effected in this direction, and much may be done meanwhile in order to reach the goal much more rapidly.

If we are not able at present to get rid of the danger which small and overcrowded dwellings involve, all we can do is to remove the patients from them and, in their own interests and that of the people about them, to lodge them better, and this can be done only in suitable hospitals. But the thought of attaining this end by compulsion of any kind is very far from me; what I want is that they may be enabled to obtain the nursing they need better than they can obtain it now. At present a consumptive in an advanced stage of the disease is regarded as incurable and as an unsuitable inmate for a hospital. The consequence is that he is reluctantly admitted and dismissed as soon as possible. The patient, too, when the treatment seems to him to produce no improvement and the expenses, owing to the long duration of his illness, weigh heavily upon him, is himself animated by the wish to leave the hospital soon. That would be altogether altered if we had special hospitals for consumptives, and if the patients were taken care of there for nothing, or at least at a very moderate rate. To such hospitals they would willingly go; they could be better treated and fed there than is now the case. I know very well that the execution of the project will have great difficulties to contend with, owing to the considerable outlay it entails. But very much would be gained if, at least in the existing hospitals, which have to admit a great number of consumptives at any rate, special wards were established for them in which pecuniary facilities would be offered them. If only a considerable fraction of the whole number of consumptive were suitably lodged in this way a diminution of infection, and consequently of the sum-total of tuberculosis, could not fail to be the result. Permit me to remind you in this connexion of what I said about leprosy. In the combating of that disease also great progress has already been made by lodging only a fair number of the patients in hospitals. The only country that possesses a considerable number of special hospitals for tuberculous patients is England, and there can be no doubt that the diminution of tuberculosis in England, which is much greater than in any other country, is greatly due to this circumstance. I should point to the founding of special hospitals for consumptives and the

better utilisation of the already existing hospitals for the lodging of consumptives as the most important measure in the combating of tuberculosis, and its execution opens a wide field of activity to the State, to municipalities, and to private benevolence. There are many people who possess great wealth and would willingly give of their superfluity for the benefit of their poor and heavily afflicted fellow-creatures, but do not know how to do this in a judicious manner. Here is an opportunity for them to render a real and lasting service by founding consumption hospitals or purchasing the right to have a certain number of consumptive patients maintained in special wards of other hospitals free of expense.

As, however, unfortunately, the aid of the State, the municipalities, and rich benefactors will probably not be forthcoming for a long time yet, we must for the present resort to other measures that may pave the way for the main measure just referred to and serve as a supplement and temporary substitute for it. Among such measures I regard obligatory notification as specially valuable. In the combating of all infectious diseases it has proved indispensable as a means of obtaining certain knowledge as to their state, especially their dissemination, their increase, and their decrease. In the conflict with tuberculosis also we cannot dispense with obligatory notification; we need it not only in order to inform ourselves as to the dissemination of this disease, but mainly in order to learn where help and instruction can be given, and especially where the disinfection which is so urgently necessary when consumptives die or change their residences has to be effected. Fortunately it is not at all necessary to notify all cases of tuberculosis, nor even all cases of consumption, but only those that, owing to the domestic conditions, are sources of danger to the people about them. Such limited notification has already been introduced in various places—in Norway, for instance, by a special law, in Saxony by a Ministerial decree, in New York, and in several American towns which have followed its example. In New York, where notification was optional at first and was afterwards made obligatory, it has proved eminently useful. It has thus been proved that the evils which it used to be feared the introduction of notification for tuberculosis would bring about need not occur and it is devoutly to be wished that the examples I have named may very soon excite emulation everywhere.

There is another measure connected with notification—viz., disinfection, which, as already mentioned, must be effected when consumptives die or change their residence in order that those who next occupy the infected dwelling may be protected against infection. Moreover, not only the dwellings but also the infected beds and clothes of consumptives ought to be disinfected. A further measure, already recognised on all hands as effective, is the instructing of all classes of the people as to the infectiousness of tuberculosis and the best way of protecting oneself. The fact that tuberculosis has considerably diminished in almost all civilised states of late is attributable solely to the circumstance that knowledge of the contagious character of tuberculosis has been more and more widely disseminated and that caution in intercourse with consumptives has increased more and more in consequence. If better knowledge of the nature of tuberculosis has alone sufficed to prevent a large number of cases this must serve us as a significant admonition to make the greatest possible use of this means and to do more and more to bring it about that everybody may know the dangers that threaten them in intercourse with consumptives. It is only to be desired that the instructions may be made shorter and more precise than they generally are, and that special emphasis may be laid on the avoidance of the worst danger of infection, which is the use of bedrooms and small ill-ventilated workrooms simultaneously with consumptives. Of course the instructions must include directions as to what consumptives

have to do when they cough and how they are to treat their sputum. Another measure, which have come into the foreground of late, and which at this moment plays to a certain extent a paramount part in all efforts for the combating of tuberculosis, works in quite another direction. I mean the founding of sanatoria for consumptives.

That tuberculosis is curable in its early stages must be regarded as an undisputed fact. The idea of curing as many tuberculous patients as possible in order to reduce the number of those that reach the infectious stage of consumption and thus to reduce the number of fresh cases was therefore a very natural one. The only question is whether the number of persons cured in this way will be great enough to exercise an appreciable influence on the retrogression of tuberculosis. I will try to answer this question in the light of the figures at my disposal. According to the business report of the German Central Committee for the Establishment of Sanatoria for the Cure of Consumptives, about 5500 beds will be at the disposal of these institutions by the end of 1901, and then, if we assume that the average stay of each patient will be three months, it will be possible to treat at least 20,000 patients every year. From the reports hitherto issued as to the results that have been achieved in the establishments we learn further that about 20 per cent. of the patients who have tubercle bacilli in their sputum lose them by the treatment there. This is the only sure test of success, especially as regards prophylaxis. If we make this the basis of our estimates, we find that 4,000 consumptives will leave these establishments annually as cured. But, according to the statistics ascertained by the German Imperial Office of Health, there are 226,000 persons in Germany over fifteen years of age who are so far gone in consumption that hospital treatment is necessary for them. Compared with this great number of consumptives the success of the establishments in question seems so small that a material influence on the retrogression of tuberculosis in general is not yet to be expected of them. But pray do not imagine that I wish by this calculation of mine to oppose the movement for the establishment of such sanatoria in any way. I only wish to warn against the over-estimating of their importance which has recently been observable in various quarters, based apparently on the opinion that the war against tuberculosis can be waged by means of sanatoria alone and that other measures are of subordinate value. In reality the contrary is the case. What is to be achieved by the general prophylaxis resulting from recognition of the danger of infection and the consequent greater caution in intercourse with consumptives is shown by a calculation of Cornet's regarding the decrease of mortality from tuberculosis in Prussia in the years 1889 to 1897. Before 1889 the average was 31.4 per 10,000, whereas in the period named it sank to 21.8, which means that in that short space of time the number of deaths from tuberculosis was 184,000 less than was to be expected from the average of the preceding years. In New York, under the influence of the general sanitary measures directed in a simply exemplary manner by Biggs, the mortality from tuberculosis has diminished by more than 35 per cent. since 1886. And it must be remembered that both in Prussia and in New York the progress indicated by these figures is due to the first beginnings of these measures. Considerably greater success is to be expected of their further development. Biggs hopes to have got so far in five years that in the city of New York alone the annual number of deaths from tuberculosis will be 3000 less than formerly.

Now, I do indeed believe that it will be possible to render the sanatoria considerably more efficient. If strict care be taken that only patients be admitted for whom the treatment of those establishments is well adapted and if the duration of the treatment be prolonged it will certainly be possible to cure 50 per cent. and perhaps still more. But even then, and even

if the number of the sanatoria be greatly increased, the total effect will always remain but moderate. The sanatoria will never render the other measures I have mentioned superfluous. If their number becomes great, however, and if they perform their functions properly, they may materially aid the strictly sanitary measures in the conflict with tuberculosis.

If now, in conclusion, we glance back once more to what has been done hitherto for the combating of tuberculosis, and forward to what has still to be done, we are at liberty to declare with a certain satisfaction that very promising beginnings have already been made. Among these I reckon the consumption hospitals of England, the legal regulations regarding notification in Norway and Saxony, the organisation created by Biggs in New York (the study and imitation of which I most urgently recommend to all municipal sanitary authorities), the sanatoria, and the instruction of the people. All that is necessary is to go on developing these beginnings, to test and, if possible, to increase their influence on the diminution of tuberculosis, and wherever anything useful has yet been done to do likewise. If we allow ourselves to be continually guided in this enterprise by the spirit of genuine preventive medical science, if we utilise the experience gained in conflict with other pestilences, and aim, with clear recognition of the purpose and resolute avoidance of wrong roads, at striking the evil at its root, then the battle against tuberculosis, which has been so energetically begun, cannot fail to have a victorious issue.—*Lancet*, July 27, 1901.

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[No. 9.]

**THE PLAGUE IN ATHENS AS DESCRIBED BY
THUCYDIDES ; WAS IT PLAGUE AS
NOW UNDERSTOOD ?**

III.

We gave, in our last number, the full text of Gibbon's narrative of the plague that prevailed during the reign of Justinian, in order to enable our readers to compare it with the narrative of the plague in Athens as described by Thucydides. The comparison will show that the symptoms are given in greater detail by the Greek historian than by Gibbon though the latter's narrative is based upon that of Procopius who had observed the symptoms and progress of the cases of the disease with the eyes of a physician. The following analysis of the symptoms will show what we mean :—

1. Visions of a distempered fancy, with despondency from the very beginning, as prodromal symptoms.

2. Slight fever in the beginning, so slight that neither the pulse nor the color of the patient gave any signs of the approaching danger.

3. The swelling of the glands especially those of the groin, of the arm-pits, and under the ear, on the 3rd or 4th day.

4. These tumours or buboes, when they did not suppurate, on being opened, were found to contain a coal, or black substance, of the size of a lentil.

5. If they continued hard and dry, they mortified, and death took place usually on the fifth day.

6. If the buboes suppurated the patient was saved.

7. The fever ~~was~~ often accompanied with stupor or delirium.

8. The bodies of the patients were covered with black pustules or carbuncles which were the symptoms of immediate death.

9. , Where the constitution was too feeble to give rise to these eruptions, there was vomiting of blood followed by a mortification of the bowels. (What is meant by mortification of the bowels it is not easy to understand. The vomiting of blood, unless expectoration of blood is meant, could only come from the stomach, but mortification of the bowels must have other symptoms, such as dysentery, &c., to indicate its presence, but these are not mentioned.)

10. In pregnant women the disease was generally fatal. There were abortions and miscarriages; these were generally but not necessarily invariably fatal to mother, and child, as it is related that "one infant was drawn alive from his dead mother, and three mothers survived the loss of their infected fœtus.

11. There was loss of speech in many who recovered, though they were not immune from a second attack.

12. The disease was undoubtedly contagious, as Gibbon, from the manner of its propagation and rapid spread justly infers, though Procopius himself not only does not say so, but mentions a circumstance by which he seems to imply that it was *not* contagious, namely, that the physicians or attendants of the sick and dying generally escaped.

13. Treatment had no effect on the disease. The physician's "art was baffled by the various symptoms and pertinacious vehemence of the disease." As in the case of the Athenian plague, "the same remedies were productive of contrary effects."

A comparison of the two plagues will show that there were both resemblances and differences in their symptoms. Both were contagious febrile diseases. Both had despondency from the very beginning. In both the skin was covered with pustules. In both notwithstanding the fever, the skin externally was not very hot. In both the bowels were in some cases involved. In both treatment had no influence, the same remedies producing contrary effects. Both were

exceedingly fatal, the Justinian being perhaps more so than the Athenian, for whereas in the former death took place on the fifth, in the latter it took place from the seventh to the ninth day. The differences in the symptoms were; In the Athenian plague there was excessive heat of the head with no stupor or delirium. In the Justinian plague stupor and delirium are mentioned among the symptoms, but we have no mention of heat of the head. In the Athenian disease we have no mention of buboes or glandular swellings, whereas these were the most prominent signs of the Justinian disease. In the former after recovery "loss of memory" was a frequent sequela, in the latter "loss of speech" was such a sequela. In the former, sleeplessness, restlessness, and unquenchable thirst were the most constant and distressing symptoms; in the latter these are not mentioned at all. In the former, the affection of the bowels, whenever existing, was declared by exhausting diarrhœa, in the latter by vomiting of blood, and by what is called "mortification of the bowels." In the one cough is mentioned as a frequent symptom, showing involvement of the lungs; in the other we have no intimation of this complication.

Some of these differences were probably real such as the existence of great heat of the head, of sleeplessness, restlessness and thirst in the one and their non-existence in the other. Others, such as the existence or non-existence of glandular swelling, of stupor and delirium, &c., might be accounted for by one narrator omitting or not thinking it necessary to mention what the other deemed too important to be omitted.

Notwithstanding the paucity of the symptoms we have of the Justinian plague, there is one among them which gives it its true nature and character, and that is, the buboes or swellings of the glands of the groin, arm-pit, &c. From this we know definitely what the Justinian plague was, and we have no hesitation in asserting that it has been prevailing ever since, with slight variations and under various names, down to our own time. "It is impossible," says Hirsch, "to decide whether this outbreak of plague in the second half of the sixth century was the first general diffusion of the disease on European soil, or whether it had been epidemic before, and if so, to what extent. What is certain is that this outbreak gave it a firm hold in Europe, and that it kept its dominion there for more than a thousand years."

That there were frequent outbreaks of the real bubonic plague in Europe through the whole period of the Middle Ages is evidenced by the fact that "many of these outbreaks are expressly designated by the authorities with such names as 'clades inguinaris,' or 'glandularis,' or 'pestis bubonica.'" But beyond what these names signify there is nothing in the chronicles of laymen, nor even in the reports of medical men, any detailed account by which the disease could be identified. The chroniclers merely give the dates of the occurrences of the pestilences and the numbers of their victims, and the medical authorities thought it enough to furnish "subtle speculations as to the influence of the stars or unusual appearances in the heavens, on the origin of the sickness." They did not think it necessary to trouble themselves with descriptions of the symptoms and course of the disease, and this fact leads probability to the view that several kinds of epidemic disease must have been mixed up in the accounts such as we have them.

To these annoying uncertainties Hirsch has found one exception. "There is one only of the epidemics of plague in the Middle Ages that has arrested the attention of chroniclers, poets, and physicians of those days; and that interest was awakened by the enormous diffusion that it reached over the whole of the then known world, by its victims reckoned in millions, and by the shock to the frame work of Society which it brought with it and left behind it. This disastrous pestilence, known everywhere under the name of the *Black Death*, as one of the great events in the world's history, has fixed the attention of writers in a high degree, and has been thought worthy to be painted in minutest details and in the most vivid colors." In a note he adds: "The most important references to this pestilence by physicians occur in Guido de Cauliaco, 'Chirurgia Tract.,' ii, cap. 5 (Lugd., 1572 113); Chalin de Vinario, 'De peste libri iii' (Lugd., 1572), and Dionysius Colle in Joh. Colle, 'Medicina pract.' (Pisauri, 1617, 570). Among the accounts in chronicles, especial attention is due to the descriptions of the jurist Gabr. de Mussis, and, among poetical sketches, to the artistically perfect account of the events in Boccaccio's 'Decameron,' Giorn. i, Introd."

Before discussing the main question we place before our readers the following graphic description of the plague at Florence, which though poetic is admitted by all to be a faithful

account of the disease as was observed by Boccaccio in his native city. Here also we have paucity of symptoms from the physician's point of view. But the mention of one symptom, the occurrence of the bubonic swellings, leaves no doubt in the mind as to the nature of the disease.

"In the year then of our Lord 1348, there happened at Florence, the finest city in all Italy, a most terrible plague; which, whether owing to the influence of the planets, or that it was sent from God as a just punishment for our sins, had broken out some years before in the Levant, and after passing from place to place, and making incredible havoc all the way, had now reached the west. There, spite of all the means that art and human foresight could suggest, such as keeping the city clear from filth, the exclusion of all suspected persons, and the publication of copious instructions for the preservation of health; and notwithstanding manifold humble supplications offered to God in processions and otherwise; it began to show itself in the spring of the aforesaid year, in a sad and wonderful manner. Unlike what had been seen in the east, where bleeding from the nose is the fatal prognostic, here there appeared certain tumours in the groin or under the arm-pits, some as big as a small apple, others as an egg; and afterwards purple spots in most parts of the body; in some cases large and but few in number, in others smaller and more numerous—both sorts the usual messengers of death. To the cure of this malady, neither medical knowledge nor the power of drugs was of any effect; whether because the disease was in its own nature mortal, or that the physicians (the number of whom, taking quacks and women pretenders into the account, was grown very great,) could form no just idea of the cause, nor consequently devise a true method of cure; whichever was the reason, few escaped; but nearly all died the third day from the first appearance of the symptoms, some sooner, some later, without any fever or other accessory symptoms. What gave the more virulence to this plague, was that, by being communicated from the sick to the hale, it spread daily, like fire when it comes in contact with large masses of combustibles. Nor was it caught only by conversing with, or coming near the sick, but even by touching their clothes, or anything that they had before touched. It is wonderful, what I am going to mention; and had I not seen it with my own eyes, and were there not many witnesses to attest it besides myself, I should never venture to relate it, however worthy it were of belief. Such, I say, was the quality of the pestilential matter, as to pass not only from man to man, but, what is more strange, it has been often known, that anything belonging to the infected, if touched by any other creature, would certainly infect, and even kill that creature in a

short space of time. One instance of this kind I took particular notice of: the rags of a poor man just dead had been thrown into the street; two hogs came up, and after rooting amongst the rags, and shaking them about in their mouths, in less than an hour they both turned round, and died on the spot.

"These facts, and others of the like sort, occasioned various fears and devices amongst those who survived, all tending to the same uncharitable and cruel end; which was, to avoid the sick, and every thing that had been near them, expecting by that means to save themselves. And some holding it best to live temperately and to avoid excesses of all kinds, made parties, and shut themselves up from the rest of the world; eating and drinking moderately of the best, and diverting themselves with music, and such other entertainments as they might have within doors; never listening to anything from without, to make them uneasy. Others maintained free living to be a better preservative, and would baulk no passion or appetite they wished to gratify, drinking and revelling incessantly from tavern to tavern, or in private houses (which were frequently found deserted by the owners, and therefore common to every one), yet strenuously avoiding, with all this brutal indulgence, to come near the infected. And such at that time, was the public distress, that the laws, human and divine, were no more regarded; for the officers, to put them in force, being either dead, sick, or in want of persons to assist them, every one did just as he pleased. A third sort of people chose a method between these two: not confining themselves to rules of diet like the former, and yet avoiding the intemperance of the latter: but eating and drinking what their appetites required, they walked everywhere with odour and nosegays to smell to; as holding it best to corroborate the brain: for the whole atmosphere seemed to them tainted with the stench of dead bodies, arising partly from the distemper itself, and partly from the fermenting of the medicines within them. Others with less humanity, but perhance, as they supposed, with more security from danger, decided that the only remedy for the pestilence was to avoid it: persuaded, therefore, of this, and taking care for themselves only, men and women in great numbers left the city, their houses, relations, and effects, and fled into the country as if the wrath of God had been restrained to visit those only within the walls of the city; or else concluding, that none ought to stay in a place thus doomed to destruction.

"Thus divided as they were in their views, neither did all die, nor all escape; but falling sick indifferently, as well those of one as of another opinion; they who first set the example by forsaking others, now languished themselves without pity. I pass over the little regard that citizens and relations showed to each other; for their terror was such, that a brother even fled

from his brother, a wife from her husband, and, what is more uncommon, a parent from his own child. Hence numbers that fell sick could have no help but what the charity of friends, who were very few, or the avarice of servants supplied; and even these were scarce and at extravagant wages; and so little used to the business that they were fit only to reach what was called for, and observe when their employers died; and this desire of getting money often cost them their lives. From this desertion of friends, and scarcity of servants, an unheard-of custom prevailed; no lady, however young or handsome, would scruple to be attended by a man-servant, whether young or old it mattered not, and to expose herself naked to him, the necessity of the distemper requiring it, as though it was to a woman; which might make those who recovered, less modest for the time to come. And many lost their lives, who might have escaped, had they been looked after at all. So that, between the scarcity of servants, and the violence of the distemper, such numbers were continually dying, as made it terrible to hear as well as to behold. Whence, from mere necessity, many customs were introduced different from what had been before known in the city.

"It had been usual, as it now is, for the women who were friends and neighbours to the deceased, to meet together at his house, and to lament with his relations; at the same time the men would get together at the door, with a number of clergy, according to the person's circumstances; and the corpse was carried by people of his own rank, with the solemnity of tapers and singing, to that church where the deceased had desired to be buried. This custom was now laid aside, and, so far from having a crowd of women to lament over them, great numbers passed out of the world without a witness. Few were they who had the tears of their friends at their departure; those friends were laughing and making themselves merry the while; for even the women had learned to postpone every other concern to that of their own lives. Nor was a corpse attended by more than ten or a dozen, nor those citizens of credit, but fellows hired for the purpose; who would put themselves under the bier, and carry it with all possible haste to the nearest church; and the corpse was interred, without any great ceremony, where they could find room. With regard to the lower sort, and many of a middling rank, the scene was still more affecting; for they staying at home either through poverty or hopes of succour in distress, fell sick daily by thousands, and, having nobody to attend them, generally died: some breathed their last in the streets, and others shut up in their own houses where the stench that came from them made the first discovery of their death to the neighbourhood. And, indeed, every place was filled with the dead. Hence it became a general practice, as well out of regard to the

living as pity for the dead, for the neigghours, assisted by what porters they could meet with, to clear all the houses, and lay the bodies at the doors; and every morning great numbers might be seen brought out in this manner, to be carried away on biers, or tables, two or threë at a time; and sometimes it has happened that a wife and her husband, two or three brothers, and a father and son, have been laid on together. It has been observed also, whilst two or three priests have walked before a corpse with their crucifix, that two or three sets of porters have fallen in with them; and where they knew but of one dead body, they have buried six, eight, or more; nor was there any to follow, and shed a few tears over them; for things were come to that pass, that men's lives were no more regarded than the lives of so many beasts. Thus it plainly appeared, that what the wisest in the ordinary course of things, and by a common train of calamities, could never be taught; namely, to bear them patiently, this, by the excess of calamity, was now grown a familiar lesson to the most simple and unthinking. The consecrated ground no longer containing the numbers which were continually brought thither, especially as they were desirous of laying every one in the parts allotted to their families, they were forced to dig trenches, and to put them in by hundreds, piling them up in rows, as goods are stowed in a ship, and throwing in a little earth till they were filled to the top.

"Not to dwell upon every particular of our misery, I shall observe, that it fared no better with the adjacent country; for, to omit the different boroughs about us, which presented the same view in miniature with the city, you might see the poor distressed labourers, with their families, without either the aid of physicians, or help of servants, languishing on the highways, in the fields, and in their own houses, and dying rather like cattle than human creature. The consequence was that, growing dissolute in their manners like the citizens, and careless of every thing, as supposing every day to be their last, their thoughts were not so much employed how to improve, as how to use their substance for their present support. The oxen, asses, sheep, goats, swine, and the dogs themselves, ever faithful to their masters, being driven from their own homes, were left to roam at will about the fields, and among the standing corn, which no one cared to gather, or even to reap; and many times, after they had filled themselves in the day, the animals would return of their own accord like rational creatures at night.

"What can I say more, if I return to the city? unless that such was the cruelty of Heaven, and perhaps of men, that between March and July following, according to authentic reckonings, upwards of a hundred thousand souls perished in the city only; whereas, before that calamity it was not supposed to have con-

tained so many inhabitants. What magnificent dwellings, what noble palaces were then depopulated to the last inhabitant! what families became extinct! what riches and vast possessions were left, and no known heir to inherit them! what numbers of both sexes, in the prime and vigour of youth, whom in the morning neither Galen, Hippocrates, nor Æsculapius himself, would have denied to be in perfect health, breakfasted in the morning with their living friends, and supped at night with their departed friends in the other world!"

(To be continued.)

CLINICAL AND OTHER NOTES ON THE ARTICLES OF THE MATERIA MÈDICA.

WE propose to give clinical and other observations on the principal articles of the *Materia Medica* arranged alphabetically. We have drawn chiefly on Hahnemann, Boenninghausen, Jahr, Carroll Dunham, Hughes, T. F. Allen, and other authorities, and on our own experience. Hahnemann's and Jahr's prefaces we have given almost entire, as deserving to be read by all practitioners of Homœopathy. The clinical observations from Jahr's *Symptomen-Codex* are thrown into paragraphs for convenience of reading and reference. We trust our efforts in thus presenting the clinical aspect of the *materia medica* will be appreciated. We shall be glad to receive suggestions and the results of their experience from practitioners of our school throughout the world.

1. ACONITUM NAPELLUS.

From Jahr and others.

COMPARE WITH—Agar., Anac., Ant. c., Arn., Ars., Asar., Bell., Bry., Cann., Canth., Caust., Cham., Coff., Colch., Croc., Dros., Dulc., Graph., Hep., Hvos., Ipec., Merc., Nitr. a., Nux v., Op., Phosp., Plat., Puls., Ruta, Sabin., Sep., Spig., Spong., Stram., Sulph., Verat.

Acon. is frequently useful as an intercurrent remedy after Arn. and Sulph., unless indicated at the commencement of the disease.

The following remedies are most frequently indicated after Acon. : Arn., Ars., Bell., Bry., Cann., Ipec., Spong., Sulph.

ANTIDOTES.—Wine, vegetable acids (vinegar, acid fruit), Camph., Nux v., Par.? Guaco?? Acon. is an antidote to Cham., Coff., Nux v., Petrol., Sulph.; Sep., Verat.—Oil, and vomiting excited by oil, seem to aggravate the effects of Acon.

CLINICAL OBSERVATIONS.

Increased frequency of the pulse, with distention of the veins.

Aconite is especially suitable to individuals of a *plethoric habit, lively character, bilioso-nervous or sanguineous constitution, dark hair, bright complexion, and to old people.*

Congestions of blood to the brain, eyes, face, heart, and lungs.

Violent hæmorrhages from various organs.

Acute inflammations of external and internal organs, with lancinating pains and synochal fever.

Attacks of violent pains generally.

Various kinds of symptoms consequent upon *fright, anger, and chagrin*, indicating disturbances in the circulation of the blood and the functions of the liver.

Bilious affections, yellowness of the skin as in jaundice.

Burns, with synochal fever.

Catarrhal affections during a cold, dry wind, or owing to a draft of air. Great liability to catch cold.

Breaking out of rash followed by dropsy, with feverish symptoms; miliaria herpetica; lichen simplex.

Rubeola, measles with synochal fever, photophobia, catarrhal inflammation of the eyes, cold, frequent sneezing, catarrhal inflammation of the mucous membrane of the larynx and trachea, and symptoms of pneumonia.

Scarlatina laxvigata and miliaris, with simple synochal fever.

Variola, varioloid, and varicella, with considerable synochal fever, especially during the shorter or longer continuance, afterwards general, dry, burning heat, with a hard, pulse. Eczema mercuriale.

Crusta lactea?

Synocha exquisita: violent chills of eruptive stage.

Erysipelas luene and fugax, also bulbosum. Nettle-rash.

Full, bounding, accelerated pulse, and great thirst, followed by a general and copious sweat.

Synochal fevers, with catarrhal, rheumatic, arthritic, erysipelatous symptoms, also with a tendency to run into a bilious and typhoid state.

First stage of cerebral and abdominal typhus, with synochal symptoms.

Third stage of cholera, when the vascular system seems to be engaged in a state of violent, unequal, congestive reaction, (We have found it useful in the collapse of cholera from the lowest dilutions and the mother tincture.)

Pest on the day of its appearance, with a violent, burning heat, somnolence, etc.

Acute rheumatism with synochal fever, stiffness of the whole body, swelling of the joints, and excessively violent pains, especially rheumatism of the joints.

Acute arthritis, with synochal fever.

Neuralgia. (We have found it useful in prosopalgia from high dilutions). (The neuralgia commonly cured, is of recent origin, and usually associated with tingling and numbness.—T. F. Allen).

Convulsions of children, with violent congestion of blood to the head. Hysteric convulsions consequent upon fright.

Chronic spasms, especially in young people who lead a sedentary life, particularly girls of a sanguine temperament.

Tetanus? Trismus? Catalepsy.

Nightmare in young people of a plethoric habit.

Fainting fits, with orgasm of the circulatory system, and considerable congestion of blood to the head.

Coma somnolentum. Somnambulism?

Dementio, with apprehension of death and great anxiety.

Dread of ghosts.

Melancholia, especially erotica, moria, and athymia melancholica.

Congestion of blood to the head, especially when combined with vertigo, in children during the period of dentition; in full-grown people it is a valuable preventive against apoplexia sanguinea.

Headache, consequent upon congestion of blood to the head, owing to catarrhal and nervous causes. Megrims.

Encephalitis, also when owing to a metastasis; acute meningitis, acute meningitis of children, first stage.

Ophthalmia, of a catarrhal, rheumatic, arthritic, serofulous, syphilitic nature, especially when chemosis has set in; inflammation of the eyes from bodies having penetrated into the eyes; ophthalmia neonatorum. Blepharophthalmitis gonorrhœica.

Otitis.

Bleeding at the nose, of a virulent kind, especially in children and in young people of the age of puberty, but also in declining years. (Hæmorrhage of bright, hot blood.—T. F. Allen).

Lancinating, drawing and tearing prosopalgia, with violent congestion of blood to the head and face, and great anxiety.

Toothache of sound and hollow teeth, drawing, throbbing, with a violent congestion of blood to the head and face, great anxiety and nervous irritation.

Difficult dentition of children, with violent congestion of blood to the head, and considerable feverish excitement.

Glossitis (acute, with dry hot mouth; merc. with salivation.—T. F. Allen).

Slight catarrhal inflammation of the tonsils, soft palate, and pharynx, consequent upon a spring or autumn cold. (Acute inflammation of various portions of the throat with swelling, dryness, sticking pain; rarely, if ever indicated after infiltration. exudation or ulceration has taken place.—T. F. Allen).

Vomiting of pregnant or hysteric females ; vomiting of lumbrici ; hæmatemesis.

Spasm of the stomach ; inflammation of the stomach ?

Inflammation of the diaphragm.

Inflammation of the liver, with a lancinating, burning pain, particularly inflammation of the convex surface of the liver, with synochal fever. Jaundice. (We have found it useful in hepatic abscess from low dilutions and the mother tincture.)

Peritonitis, also puerperal peritonitis.

Colic after a cold.

Enteritis, inflammation of the large and small intestines, with lancinating, cutting, burning and tearing pains, with excessive sensitiveness of the body to the touch ; in this affection Aconite is often useful even after vomiting of faecal matter, great anguish and coldness of the inferior extremities have set in.

Psoriasis.

Strangulated hernia.

Nephritis. Cystitis. Suppuration of the bladder.

Melæna ?

Flowing hæmorrhoids of a violent kind ; painful varices of the rectum.

Oophoritis.

Uteritis, in young females of a plethoric habit. Active *metrorrhagia*. Too frequent, long, and copious menses, owing to plethora ; restoration of the menses in plethoric females, when they had been suppressed by fright, chagrin, or cold by the feet.

Fluent and dry *coryza* with synochal fever.

Inflammation of the larynx and the mucous membrane of the trachea, with a sense of dryness and rawness, with roughness and hoarseness of the voice, troublesome dry cough, occasioned by tickling in the larynx, and accompanied by synochal fever.

Grippe : *Coryza*, violent dry cough, owing to constant titillation in the larynx and trachea, with lancinating, oppressive pains in head and chest, pain in the epigastrium and hypochondria, as if bruised, a similar pain as if bruised and a drawing pain in all the limbs, great physical depression and lassitude, synochal fever and copious sweats, which afford no relief.

First stage of *croup*.

Whooping cough in the first stage, with feverish sensations.

Asthma, owing to congestion of blood to the thoracic viscera ; asthma in chlorotic individuals or such as are affected with amenorrhœa. Asthma Millari ?

Hæmoptysis with considerable congestion of blood to the lungs and heart, sense as of a warm fluid rising in the chest, oppression and anguish at the chest, violent palpitation of the heart, vertigo, obscuration of sight, hard, full pulse, etc. Hæmoptysis owing to tuberculous phthisis.

Pleuritis muscularis and *serosa*, first period, with violent stitches and synochal fever.

Pneumonia, *Pleuropneumonia simplex* and *biliosa*, first stage, with a dull aching pain, great dyspnoea, unceasing short cough, with expectoration of frothy blood and violent synochal fever; also in the stage of splenetization.

Inflammation of the walls and coats of the vomicae, with lancinating pains and synochal fever.

Pneumonia infantum, with a short, rattling breath, continual irritation which excites cough, constant cries and great anxious uneasiness.

[According to Dr. Allen the Aconite Cough is dry, short hacking or hard ringing and croupy, it hurts the larynx (in laryngitis) or the chest (in pleurisy and pneumonia). In the first stage of membranous croup, with high fever, great anxiety and restlessness, it will often abate the attack. Iodine is useful at this stage of high fever, but the patient must be quiet and the exudation should have already become plastic. The cough of Aconite is usually aggravated by warmth.]

Affections of the chest during the cholera.

Pericarditis, carditis, also when occasioned by the abuse of Mercury; endocarditis, with or without rheumatism of the joints.

Palpitation of the heart, with violent orgasm of the blood and great anguish.

Invaluable sedative in organic affections of the *left heart*, and of the large vessels, in angina pectoris, hypertrophy of the left heart, with either thickening or contraction of its walls, aneurisms of the aorta, etc.

Aconite and Digitalis are especially suitable for disease of the left heart.

Paralysis? Rheumatic paralysis? Sciatica? Incipient coxalgia infantilis?

[Aconite is never to be given "first to subdue the fever," and then some other remedy to "meet the case;" never to be alternated with other drugs for the purpose, as is often alleged, of "controlling the fever." If the fever be such as to require Aconite, no other drug is needed. If other drugs seem indicated one should be sought which meets the fever as well; for many drugs besides Aconite produce fever, each after its kind.]

Aconite should never be given to "save time" while the physician goes home to study up the case. This is slovenly practice; it were better to give nothing, because Aconite, if given in a case which does not call for it, may do mischief; as, for example, in the commencement of typhoid fever in which it will unfavorably influence the entire course of the disease, unless symptoms call for it, which they rarely if ever can do.—Carroll Dunham.]

[It should be remembered that the appropriateness of Aconite to certain stages of fever and inflammation was discovered not from the drug having actually produced fever and inflammation, but from its having produced nervous and mental symptoms which often accompany these morbid states. On being asked by Dr. Quin, the pioneer of homœopathy in England, how he had discovered the great antiphlogistic power of Aconite, as that was not evident from the proving, Hahnemann is said to have replied, "that he had not directly discovered this property from the proving but that whilst treating some inflammatory disorders he was led to the employment of Aconite from the similarity of the *concomitant* symptoms with some in the pathogenesis of Aconite, and he had found its administration followed by a great diminution in the frequency of the pulse, and a cessation of the febrile state." Dr. Hughes rightly observes that "although the actual discovery of the power of Aconite over fever was made by means of the associated mental symptoms rather than by the febrile phenomena themselves, yet there can be no doubt of the real homœopathicity of the drug to the latter also. It is true that a hasty glance at the symptoms of poisoning by this plant has led to its being set down as a mere cardiac depressant. But a closer look reveals that the condition set up is one answering to the chill of fever and ague and the collapse of cholera."]

From Hahnemann.

Although the following symptoms do not express the whole significance of this most valuable plant, still they reveal to the thoughtful homœopathic physician a prospect of relieving morbid conditions in which traditional medicine has hitherto employed its most dangerous methods, *e. g.*, copious blood-letting and all its complex would-be antiphlogistic treatments, often ineffectually, and almost always with disastrous consequences. I allude to the so-called pure inflammatory fevers, in which the smallest dose of aconite enables us to dispense with all the traditional antipathic treatments, and relieves rapidly and without evil effects. In measles, in purpura miliaris, and in the acute pleuritic fevers, &c., its curative power is marvellous, when, the patient being kept rather cool, it is given *alone, all other medicinal substances, even vegetable acids, being avoided*, in the dose of a thousandth part of a drop of the decillionth development of power. It is seldom that a second similar dose is required thirty-six or forty-eight hours after the first.

But in order to remove from our conscientious treatment all that routine practice which is only too apt to regulate its treatment in accordance with delusive names of diseases, it is indispensable that, in all morbid conditions in which aconite is given, the chief symptoms of the malady, therefore also of the acute disease, should be found accurately reproduced among the symptoms of aconite. The effect is then astonishing.

It is precisely in the great acute inflammatory fevers in which allopathy chiefly plumes itself as alone able to save life by means of bold, frequent venesections, and imagines that here it is superior in curative efficacy to all homœopathic treatment—it is precisely here that it is most mistaken. It is precisely here that the infinite superiority of homœopathy is manifest, that it needs not to shed a single drop of blood, that precious vital fluid (which the allopath recklessly draws off in streams, to the often irremediable disadvantage of the patient), in order to transform this dangerous fever into health in as many hours as the allopathic vitality-diminishing treatment often requires months for the perfect restoration of those who are not carried off during the process by death, or, at all events, in the chronic after-affections artificially caused by the means employed.

In these acute cases of disease sometimes a homœopathic intermediate remedy is required for the morbid symptoms remaining after twelve or sixteen hours' action of the first dose of aconite; but it is very rarely that a second dose of aconite is needed after this intermediate remedy.

By means of aconite carefully administered in this way in a disease of the above-mentioned character all danger is removed even in four hours, and the excited circulation resumes its tranquil vital course from hour to hour.

Although aconite, on account of the short duration of its action (which in such small doses does not exceed forty-eight hours), might seem to be useful only in acute diseases, yet it is an indispensable accessory remedy in even the most obstinate chronic affections, when the system requires a diminution of the so-called *tension of the blood-vessels* (the *strictum* of the ancients). On this subject, however, I cannot enter more fully in this place. Its utility in such cases is shown by the symptoms it produces in the healthy subject, which are partially recorded in the following pages.

Aconite is also the first and main remedy, in the minute dose indicated above, in inflammation of the windpipe (croup, membranous laryngitis), in various kinds of inflammation of the throat and fauces, as also in the local acute inflammations of all other parts, particularly where, in addition to thirst and quick pulse, there are present anxious impatience, an unappeasable mental agitation, and agonizing tossing about.

It produces all the morbid states similar to those seen in persons who have had a fright combined with vexation, and is also the surest and quickest remedy for them.

In the selection of aconite as a homœopathic remedy particular attention should be paid to the symptoms of the disposition, so that they should be very similar.

Hence it is indispensable after fright or vexation in women during the catamenia, which without this excellent soothing remedy are only too easily, often instantaneously, suppressed by

such emotional disturbances. For this purpose a single momentary olfaction at a phial containing a globule the size of a mustard-seed, moistened with the decillionth potency of aconite (which may be kept for this use for years in a well-corked phial without losing its curative power) is quite sufficient.

Most of the apparently opposite aconite symptoms recorded below are merely alternating states, and it may be curative by means of both, but it is most so in respect of those which have a tonic character.

Vegetable acids and wine antidote its effects, and so do other medicines which correspond palliatively or homœopathically to some of its troublesome symptoms (produced by too large a dose or unhomœopathic selection).

CONCORDANCES (from Boenninghausen).

Moral and intellectual faculties.—Anac. ars. BELL. bry. calc. cham. cocc. graph. hyosc. ignat. lach. *lyc.* merc. mosch. *natr-mur.* n-vom. op. *phosph. puls.* rhus. *sep. stram. sulph. veratr.*

Seat of the diseases.—Arn. ars. BELL. BRY. CALC. canth. carb-veg. caust. CHAM. CHIN. cocc. con. dig. dros. dulc. graph. *hep. hyosc. ignat. ipec. kali. LYC. MERC. natr. natr-mur. nitr-ac. N-VOM. op. petr. PHOSPH. ph-ac. plat. plumb. PULS. RHUS. ruta. sabad. sec-corn. SEP. sil. spig. stann. staph. SULPH. VERATR. zinc.*

Morbid states and sensations.—Arn. ARS. asaf. bar. BELL. BRY. CALC. canth. carb-veg. caust. *cham. chin. cocc. ferr. hyosc. ignat. kali. LYC. merc. natr. natr-mur. nitr-ac. N-VOM. PHOSPH. ph-ac. plat. PULS. RHUS. SEP. sil. spig. staph. stram. SULPH. veratr.*

Glands.—BELL. bry. *lyc. MERC. PHOSPH. puls. sulph.*

Bones.—Bell. calc. *lyc. MERC. phosph. puls. sulph.*

Skin.—Amm. arn. ars. BELL. BRY. caust. cham. dulc. *hep. ipec. kali. lach. lyc. MERC. mezer. nitr-ac. n-vom. phosph. ph-ac. PULS. RHUS. sec-corn. sep. sil. staph. SULPH.*

Sleep and dreams.—Anac. ars. bell. BRY. calc. caust. cham. *chin. con. graph. hep. ignat. kali. lach. lyc. merc. natr. n-vom. op. PHOSPH. ph-ac. puls. rhus. sep. sil. SULPH.*

Pyrosis.—Arn. ars. BELL. BRY. calc. carb-veg. *cham. chin. creos. cupr. ferr. hep. hyosc. ignat. jod. ipec. kali. lyc. MERC. natr-mur. nitr-ac. N-VOM. op. PHOSPH. ph-ac. puls. RHUS. samb. sec-corn. sep. sil. stann. stram. sulph. veratr.*

Time.—Ant-crud. ant-tart. arn. ars. bry. calc. caps. carb-an. *croc. dulc. hep. ignat. jod. kali. magn. mang. merc. nitr-ac. plumb. rhus. samb. sep. sil. staph. sulph.*

Exacerbations.—Anac. ars. bar. bell. bor. BRY. CALC. caust. *cham. hep. ignat. kali. LYC. N-VOM. phosph. puls. RHUS. sabad. sabin. scill. sep. sulph. veratr.*

Concordances in general.—Anac. arn. ARS. BELL. BRY. CALC. carb-veg. caust. *cham. chin. cocc. dulc. graph. hep. hyosc. ignat. ipec. kali. lach. LYC. MERC. natr. natr-mur. nitr-ac. N-VOM. op. PHOSPH. ph-ac. PULS. RHUS. sec-corn. SEP. sil. spig. staph. stram. SULPH. veratr.*

Antidotes.—Acetum. cham. *coff. n-vom. veratr. vinum.*

EDITOR'S NOTES.

Appendicitis in a Seven Weeks' Infant.

G. Blumer and H. L. K. Shaw (*Arch. Pediat.*, xviii, p. 593, August, 1901) point out the rarity of appendicitis in the first two years of life, and give details of a case in an illegitimate male infant 7 weeks old. The child had gonorrhœal ophthalmia and thrush, and had in his short life been fed on various infant foods. When little more than a month old he had an ischio-rectal abscess, with both an internal and an external opening. He was soon thereafter brought into hospital in a comatose state; for a week there had been œdema of the face and limbs, and there was now general anasarca. He weighed only 6 lbs. 6 ozs.; there was talipes calcaneus, there was some intertrigo, and the skin had an offensive odour. Under treatment with hot baths the œdema diminished, and the infant was fed upon barley water and milk. He grew weaker, however, and died in a stuporous condition two days after admission. There had been one evacuation of the bowels, and that contained blood, pus, mucus, and undigested food. The necropsy revealed adhesions between the caput cœcum and the sigmoid flexure, and on breaking up these it was found that there was an abscess cavity with the appendix (1 inch long) projecting into it. The cavity contained 10 c.cm. of brownish pus. Sections of the appendix revealed a state of acute inflammation. During life there were practically no symptoms pointing to any special abdominal disturbance.—*Brit. Med. Journ.*, August 31, 1901.

The Mineral Composition of the Human Fœtus.

Proceeding gradually to incineration, Hugoueney (*Bull. de l'Acad. de Méd.*, xlv, 1901) gives analyses of eight fœtuses ranging from 4½ months to term. The series is valuable as being more extensive than those hitherto examined, but though suggestive it is still too scanty to furnish absolutely trustworthy conclusions. The fœtuses were six females from 4½ to 6 months and two males at term. From the comparison of the ash and body weights, the conclusions are drawn that the rate of mineral deposition is much greater in the last three months, and that at term the fœtus has taken about 100 gr. of mineral from the mother. The amounts of salt per kilo of body weight are much more uniform, and if we compare the female series alone we find as high percentage of salts in the 4½-month fœtus as in those older. The two male fœtuses at term show a distinct but not great mineral preponderance, especially in lime and phosphorus. Bunge's law that

the mineral composition of young animals is proportional to that of the mother's milk is not borne out by the analyses of the two full-time children. Calculations on a somewhat hypothetical basis seem to show that part of the iron in the body is outside the blood. The ratio of soda to potash seems to decrease somewhat towards term. This is probably associated with the relative increase of blood corpuscles and striped muscle. The relative increase of lime salts is due to the development of the bones, but the nutritional needs of the cells are the same all through embryonic life.—*Brit. Med. Journ.*, August 10, 1901.

Rapid Restoration of the Functions of a Divided Ulnar Nerve after Suture.

Toussaint (*Rev. Méd. de l'Est*, June 15th, 1901) reports an interesting case in which suture of an ulnar nerve that had been accidentally divided two years previously was almost immediately followed by restoration of movement and sensation in the corresponding hand. The patient was a French soldier, aged 23, who in November of 1898, was severely wounded just above the left wrist in thrusting his forearm through a pane of glass. This injury was followed by distortion of the left hand, with loss of sensibility of the last two fingers, and also by severe pain extending along the course of the ulnar nerve. When the man came under the author's notice at the end of last year, it was found that tactile and thermic sensibility, together with feeling of pressure, had completely disappeared over the digital distribution of the injured nerve. The muscles of the hand supplied by this nerve were paralysed. The first palmar interosseous muscle had lost all apparent contractility even under the influence of the electric current, and the ring and little fingers were bent on to the palm. Voluntary apposition and separation of the fingers were, the author states, reduced to their most simple expression. Trophic disturbances were indicated by the absence of hairs over these fingers, by longitudinal furrowing of the nails, and by the soft and glossy skin. On December 21st the author exposed the separated ends of the ulnar nerve, and fixed the lower end into a vertical cleft cut in the bulbous upper end by catgut sutures passed through each segment of the nerve trunk. On the following day the patient complained of pain in the last two fingers, and stated that he could move the little finger. On December 24th the dressings were removed, and then it was found that voluntary movement of these fingers had been restored, together with cutaneous sensibility, both to the contact of external bodies and to heat

and cold. This case, taken together with two well-known instances reported by Tillaux of rapid restoration of nerve function after secondary suture of the median, furnishes an encouraging though very exceptional example of nerve suture. The good results in the author's case are attributed to the care taken to approximate the ends of the divided ulnar, and to keep those ends together by sutures passed through the whole thickness of the nerve.—*Brit. Med. Journ.*, August 24, 1901.

The Exposure of Food for Sale in the Streets.

In busy and crowded thoroughfares the practice of exposing food for sale is open to the greatest objection. The air of such places presents a terrible bacteriological history and the contamination of food sold in open places becomes an easy possibility. Street dust is full of tubercle bacilli from the detestable habit of spitting, it also may contain the microbes of pus, malignant oedema, tetanus, and septicæmia. It is true that the taint deposited on food exposed for sale may be purged in the process of cooking and micro-organisms may be destroyed although it has been pretty strongly asserted that the cookery of fish in particular has not been effectual in destroying the typhoid bacillus, instances of typhoid fever having been traced to contaminated yet cooked fish. The avidity with which certain foods would appear to absorb noxious odours is well known. Milk is peculiarly liable to take up unpleasant odours and so, also, is fish. The former is employed when exposed in shallow trays to reduce the smell of paint in a house. Fish cannot be placed in the same parcel as coffee or other pungent-smelling article of food, as it so rapidly absorbs the odoriferous principle. Busy streets are seldom free from offensive effluvia, and it is reasonable to conclude that these would easily affect many articles of food exposed to them. In our own knowledge quite recently complaint was made that a salmon tasted strongly of creasote. The fishmonger might easily have been charged with selling fish brushed over with a powerfully smelling antiseptic. But it subsequently proved that the Strand (as usual) was "up" and that the stacks of black wooden bricks were giving off a strong naphthalene odour corresponding exactly with the taste of the salmon bought in a Strand shop at the very moment when the bricks were being dumped down on the pavements. This explanation was convincing, but we only quote it as a proof of the liability to contamination of food exposed for sale in the streets under an environment which can seldom be described as hygienic. The fish was probably not injurious to health, but it possessed a decidedly unpleasant taste. Butcher's meat

might easily get tainted in the same way. It has been recorded that meat exposed to a current of tobacco smoke has proved powerfully toxic, and this again affords a further illustration of the dangers involved when food is indiscriminately left in contact with air of doubtful purity. It is not desirable that food offered for sale should be exposed to the free influx of air from the streets. If it must be presented to view to attract customers it should be exhibited behind a glass screen, and adequate provision should be made for ventilation with pure air.—*Lancet*, August 17, 1901.

The Frequency of Tuberculosis among Alcoholics.

Felix Imbault (*Thèse de Paris*, 1901) draws attention to the importance of the relations between alcoholism and tuberculosis, especially since the recent revival of a vigorous campaign against these two potent causes of disease and social degeneration. According to Landouzy alcoholism "makes the bed for tuberculosis" (*fait le lit de la tuberculose*). It is with a view to get precise conclusions on this point that the present research was carried out—namely, as regards the frequency of tuberculosis among alcoholics. In 1864 Leudt, in a paper presented to the Medical Congress at Lyon, stated that among 121 adult drunkards who had died from various kinds of alcoholic intemperance, 20 were found to be tuberculous. He concluded that pulmonary phthisis was less frequent among habitual drunkards than amongst the habitually sober. Imbert (*Thèse de Paris*, 1896-97), from a total of 318 male alcoholics examined at the Laennec Hospital, made a special study of 131, and found that 15 of these, or 11 per cent., were affected with tuberculosis. From a similar special study of 68 females he found 6 cases of pulmonary tuberculosis and one of tuberculous peritonitis, or 10 per cent. It should be added that Imbert did not search specially or systematically for tuberculosis among these patients. Paul Raymond (1896) made observations at the Hotel Dieu in Paris. Among 62 drunkards of excessively intemperate habits and incapable of working he found 14 cases of pulmonary tuberculosis. These cases were apparently free from a phthisical heredity, and comprised 38 males and 24 females. Imbault, from a series of inquiries addressed to medical practitioners in the country and in small towns, obtained trustworthy accounts of 248 alcoholics as regards the causes of death; of these, 44 died of pulmonary tuberculosis, 2 of tuberculous meningitis, 1 of laryngeal phthisis, 1 of general tuberculosis, and 1 of diabetes and tuberculosis, thus showing 49 deaths from tuberculosis, or 19·7 per cent., a proportion that he thinks is apparently very high. Tabarry, in a recent *Thèse de Paris*

(1899-1900), from a careful statistical study of the geographical distribution of tuberculosis in France, came to the conclusion that it prevailed most in the districts where most alcohol was consumed, the correspondence being very close in the majority of the departments. In some, however, no parallelism could be traced. "It appeared that in Brittany, where phthisis is very prevalent and is on the increase, other factors (hygienic and social) co-operate with alcoholism (Renault, *Thèse de Paris*, 1900). From observations collected by Distrée and Gallemaertz (*La Tuberculose en Belgique*, 1889), from the Annual Official Statistics of Italy (1892), and from those of Bertillon for Paris (1897), it appears that "the professions or occupations in which alcoholism is common have in general a high mortality from tuberculosis." This is partly due to alcoholism, but other etiological factors are also present. Among 45 phthisical patients studied Imbault found 8 to be of temperate habits, the daily consumption of wine not exceeding 1½ litres per head. The rest were heavy drinkers, but of these 7 had ceased to drink heavily after the appearance of phthisical symptoms. All were male adults. The descendants of alcoholic parents show an excessive mortality, in which tuberculosis and meningitis play a most important part, as shown by the observations of Legrain, Grenier, and others, and confirmed by the author.—*Brit. Med. Journ.* August 10, 1901.

Fruit in the Assuagement of Thirst.

Chemical analysis would assign practically no nutritive value to the juicy fruits, for they consist of little more than a cellulose envelope containing a solution of sugar, the amount varying from 17 per cent., as with grapes, to about 1·4 per cent., as with lemons. The amount of water in fruit is considerable. In water-melons it is no less than 95 per cent., in grapes 80 per cent., in oranges 86 per cent., in lemons 90 per cent., in peaches 88 per cent., in apples 82 per cent., in pears 84 per cent., in plums 80 per cent., in nectarines 83 per cent. and in strawberries 90 per cent., not a fruit in the whole category containing less than 80 per cent. The irresistible conclusion, considering these facts, is that fruit plays an important rôle in diet as a thirst quencher. Certainly when fruits are freely represented in the diet less fluid requires to be consumed and fruits would appear to be endowed with a subtle inimitable flavour which is ample inducement to imbibe fluid in this most wholesome form. The question so prominent in people's thoughts at this hot season of the year as to what to drink might, therefore, on sound physiological reasoning, be answered, eat sound, ripe, juicy fruit. It is noticeable that as fruit enters into

the diet the Indnlgence in alcoholic drinks is diminished. Thus it is most satisfactory to observe people taking a good juicy slice of melon as preparatory to a meal instead of sherry and bitters or a "cocktail." This is a most commendable practice and the proceeding is dietetically speaking perfectly rational. The flavourings of fruits, although of little nutritive value, are undoubted stimulants to the appetite and aids. to digestion. Moreover, the juice of fresh cut fruit is perfectly free from microbes, is as sterile as freshly clean-drawn milk, and the fruit acids tend to inhibit the power of those disease producing bacteria which flourish in neutral or alkaline media. The marked anti-scorbutic properties of fresh fruit due to the vegetable acids and their salts in the juice are of great importance. For the most part these acids are combined with potash and hence a free diet of fruit preserves a healthy alkaline condition of the blood and there is consequently a reduced tendency to the depositing of acids in the tissues. Peaches and that delicious and delicately flavoured fruit the nectarine contain quite a small quantity of sugar and this, coupled with the fact of the tenderness of their pulp, makes them suitable for the gouty and diabetic. There can be no doubt that the juice of sound ripe fruit is an ideal means of assuaging the intense thirst of hot weather—cooling, refreshing, and of an agreeable flavour. It is a common experience that the more a person drinks to satisfy the demands of thirst in hot weather the worse he feels. The temptation is to gulp down huge quantities of fluid with the result that excessive perspiration sets in and a very uncomfortable and unrelieved feeling follows. On the other hand, a judicious amount of sound, ripe, juicy fruit, whilst containing all the water necessary to assuage thirst, would lead to no such distress and would exercise other healthy effects on the bodily functions.—*Lancet*, August 24, 1901.

The Degradation of Food.

There can be no doubt that during the past decade food has undergone a steady degradation, and this cannot be without a demoralising influence upon the human race. It will be noticed that by far the majority of cases of tampering with food relate to the substitution of a cheaper article rather than to the addition of an injurious substance. The common defence is that modern conditions of life make substitution a necessity. It is difficult to see the logic of such a defence—at least, in a number of instances. It is urged, for instance, that jam or marmalade cannot be made without the addition of glucose which prevents the preserve from crystallising. Now long before glucose was a household word jams and marmalade were made—and very good

they were, too—consisting entirely of sugar and fruit. In the same way we are told that beer must be brewed from sugar and that brewing exclusively from malt presents untold difficulties. Again, golden syrup, which used formerly to be the refined syrup of molasses, consists largely now of artificial sugar, which is doubtless a more marketable product but is not the same thing as cane sugar. Yet, again, we are told that the public demand a perfectly white loaf of bread, the truth in reality being that machinery has produced a roller flour which is an inferior thing to the now, we suppose, extinct stone-milled flour. Instances of this sort could be multiplied. We could wish that all those keeping house would make up their minds seriously to return to the excellent custom of preparing many articles of food for themselves at home. Who does not admit the charm of home-made bread, home-brewed beer, or home-made jam, and simply because they are known to be made from an honest formula which has stood the test of time and from good materials which yield a palatable product? Even in the country good old-fashioned wheaten bread, with that fascinating brown colour of rich wheaten flour, containing the entire nutritious portions of the berry and possessing that delightful wheaten flavour, now seldom, if ever, characteristic of bread, is difficult to obtain. The baker's loaf is, as a rule, a tasteless, insipid article which requires a considerable appetite before the idea of eating it can be entertained. No wonder that the taste for bread is steadily diminishing, and undoubtedly less bread is consumed than used to be the case. As is well known, bread contains almost every element of food necessary for existence, but we should be sorry for the person who tried to subsist entirely upon the modern uninteresting loaf made from blanched roller mill flour. It has recently been stated that the degradation of the teeth so noticeable amongst us now is due to roller milling having largely supplanted stone milling. We should not be surprised. The degradation of food is a very serious matter and is bound to lead sooner or later to the degradation of the eater. No movement could confer greater blessing upon the people than that which aimed at bringing about a return to the older and more rational methods of preparing food. Let us see more of the home-made article than we now see; let us return to more palatable food and to food that will do more good than the machine-made stuffs and the endless series of substitutes. In all the schools throughout the land we would have the children taught the advantages of home-made food, and how that bread, fruit, jam, or even beer and cider can be made at home. It would encourage a spirit of industry, it would give us palatable and nourishing articles

to eat or drink, and might have a very wholesome effect upon those who seem deliberately to attenuate food as much as possible or who pay no regard to its naturally endowed palatability.—*Lancet*, August 10, 1901.

CLINICAL RECORD.

Foreign.

AN INTERESTING CASE OF MUMPS.

By T. E. PURDOM, M.D.

The following case is worth recording from its comparative rarity. Orchitis is common enough as a complication of mumps, but meningitis is rare and still more rare with orchitis.

J. P., æt. 15, slender build, very studious, has been working hard for an examination lately.

January 22nd, 1901.—Developed a sharp attack of mumps with much swelling. His mother kept him in bed for six days, and gave him merc. corr. Though the swelling was not quite gone he then went into another warm room for a short time.

January 27th.—On the seventh day of his illness he again felt very ill and became very feverish. He complained of pain in his bowels. He was at once given acon. and bell.

January 28th.—I first saw the boy to-day. He was lying low down in bed on his back, looking very ill. Conjunctivæ injected. His pulse was 120, temp. 105.5°, tongue dry and brown. He complains of headache. He also has some pain about McBurney's point on right side of abdomen. He is very sick and has kept nothing down for about a day. The abdomen is somewhat tender at above spot. I now found his right testicle acutely inflamed, swollen and tender. The abdominal pain was evidently reflected up the cord from the testicle.

He was given aconite 1x mj, and pulsatilla ϕ 1-5th. Hot fomentations, with lead and opium liniment added, were applied, so as to envelope the scrotum.

29th.—Pulse 112, hard and full, temp. 103.5°, tongue slightly moist, but very thickly coated. Testicle about the same. Abdominal pain better. Conjunctivæ more injected. He lies in a stupor with occasional delirium, talks nonsense excitedly, as if he saw strange objects. Bell. ϕ 1-5th, vir. vir. ϕ 1-5th.

30th.—Pulse 96, temp. 100.4°. Tongue dry again. Bell. ϕ 1-5th, bry. alb. ϕ 1-5th.

31st.—Pulse 80, temp. normal.

February 2nd.—Pulse 96, temp. 98°. Tongue very dry. Lies in a stupor, can't put tongue out. Pupils slightly dilated. React slowly and imperfectly to light. Conjunctivæ still injected but paler. Obstinate constipation. Testicle much better. Abdomen is concave and skin over it stretched tight. This is probably due to the cerebral condition. He sleeps more naturally, but has fits of excitement. There is evidently some cerebral pressure. Bry. \varnothing ij, sulph. \varnothing j.

6th.—Next note was made on this date. Pulse 60, temp. sub-normal. Tongue brown and dry. Bowels constipated. He can't answer questions, nor protrude tongue.

8th.—Pulse 60, temp. normal. Dry fur on tongue breaking up. Mental state slightly better. Talks nonsense, says he is a bird, etc. Bowels acted freely after a dose of merc. dulcis 1x. Pupils act normally. Conjunctivæ still pink and suffused. Repeats whatever is said to him. Very incoherent. Both bowels and bladder have acted involuntarily more than once. Scrotal œdema gone. Testicle much smaller. Bry. alb. 1x $\mathfrak{m}5$, sulphur 3x $\mathfrak{m}5$.

At the beginning of the secondary illness, the patient was very difficult to feed. He had as extra treatment mustard poultices to nape of neck, and hot sponges applied to the head. For some time there was great mental apathy. There must have been some cerebral effusion which was gradually passing off. He took zinci. phos. 3x trit. steadily for some weeks. The injection of the conjunctivæ gradually disappeared. He had a change to the sea, and was quite himself about the middle of March.

The previous brain work may have predisposed to the brain complication, but the case is very interesting as an instance of double metastasis. The medicines seemed well indicated and acted well. Several cases have been recorded of meningitis, following mumps, proving fatal.—*Monthly Hom. Review*, August 1, 1901.

CASES OF NEURALGIA OF INFLUENZA, TREATED BY *GELSEMIUM*.

By Dr. LAMBRECHTS, Anvers, France.

I.—In February 1900, a boy of 12 years was suddenly attacked with an affection presenting all the characteristics of influenza—fever, lassitude, cough, loss of appetite, constipation, headache.

At the end of a fortnight of allopathic treatment, the symptoms of bronchitis and of gastric trouble had sensibly diminished, but a dull pain persisted in the neck with a slight feverish movement, returning

every morning towards 9 o'clock and disappearing in the afternoon. During this attack the child was weary and incapable of giving himself up to the slightest occupation. The physician treating him had prescribed different remedies such as quinine, antipyrin, phenacetin, cocaine, etc.; these remedies relieved the pain sometimes for a few instants, but the attacks reappeared the next day with a much greater violence. In view of the ill success of the treatment, the parents resolved to try homœopathic treatment. When I saw the child he had fever of 38° C, and complained of a pain in the occiput which was notably increased by lying down. Immediately I prescribed *gelsemium* 3x, three drops in a teaspoonful of water every two hours. The next day the fever and pain had diminished in intensity and duration; the day after the access did not reappear, and the child continued to enjoy health until February, 1901, when he was taken with a new access of influenza, presenting exactly the same features. I again prescribed *gelsemium* 3x.

Under the influence of this remedy the neuralgic pains disappeared completely towards the third day of the disease. The cough and the headache, which were still persistent, yielded rapidly to *belladonna*, *merc. sol.* and *hepar. sulph.*

II.—February 12th I was called to the house of Mrs. L, aged 35 years, and endowed with a robust constitution. In returning from a visit to a friend attacked with influenza, she felt suddenly an intense cold in the back, as if she had received a shower-bath of ice water along her vertebral column. She went to bed, and as she had some idea of homœopathy, she took some pellets of *aconite* 3. The night was bad, and towards 5 o'clock in the morning she commenced to feel an intense pain in the neck; this pain increased until 10 o'clock, and disappeared almost entirely in the afternoon. She continued *aconite* and added *bryon.* 3. In spite of this treatment, the symptoms reappeared the next day with a greater intensity. It was then that she sent for me. I saw the patient towards 10 o'clock in the morning when the access was at its height.

The temperature under the arm was 38·7° C, the occipital neuralgia was insupportable; it was characterized by a sensation of heaviness and of pressure, as if the head were going to burst, and sensibly increased by lying down. There existed, besides, a lassitude and weakness in the limbs, a dry cough, with painful stitches in the side, tongue coated, thick urine and constipation.

Gelsemium 3x made the neuralgia and fever disappear in two days; *rumex.* and *china* finished the cure.

III.—Mr. R, aged 47 years, of a very pronounced nervous temperament, had been attacked with influenza for several days. The affection had begun abruptly with a sensation of cold in the back, with slight fever, intense cephalalgia, lassitude in the limbs, general weariness, very dry cough provoked by a scratching in the throat, symptoms of gastric trouble, flabby tongue, no appetite, constipation, charged urine. The patient had gone to bed and had perspired freely with the aid of diaphoretic drinks. This perspiration had made such a better condition that he thought it useless to have recourse to medical assistance, if he had not retained a violent neuralgia which prevented his taking up his habitual occupations. The worst of the pain he declared to be in the occiput; then it extended towards the top of the neck and remained actually fixed in the forehead and the eyeballs. It commenced towards 4 o'clock in the morning and arrived at its height towards 10 o'clock to diminish sensibly in the afternoon.

During all this time the patient was unable to read or to do any other intellectual work.

Gelsemium 3x made the neuralgia disappear at the end of several hours, without repetition.

This case is interesting from the point of view of the rapid effect of the remedy.—*Journal Belge d'Homœopathique in American Medical Monthly*, August, 1901.

Gleanings from Contemporary Literature.**PRESIDENT'S ADDRESS.**

DELIVERED AT THE
SIXTY-NINTH ANNUAL MEETING OF THE BRITISH
MEDICAL ASSOCIATION.

BY

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B. CH. OXON.,

Senior Surgeon to the Cheltenham General Hospital and to
Cheltenham College.

**SCIENTIFIC RESEARCH: THE INDISPENSABLE
BASIS OF ALL MEDICAL AND MATERIAL
PROGRESS.**

“Vergebens, dass, ihr ringsum wissenschaftlich schweift,
ein jeder lernt nur was er lernen kann,
doch der den Augenblick ergreift,
das ist der rechte Mann.”

—Goethe.

“Man is bound to expend every particle of strength which God Almighty has given him in doing the work he finds he is fit for, to stand up to it to the last breath of life, and to do his best.”

—Carlyle.

“Quemcumque miserum videris, hominem scias.”

—Seneca.

INTRODUCTORY.

Ladies and Gentlemen,—My first duty is to bid you a hearty welcome to Cheltenham, which has not been visited by the Association since 1837, the auspicious year of our late lamented Queen's accession to the throne. But 1901 is no less an auspicious year, marking as it does the accession of King Edward VII, formerly an honorary member of our Association, but now its patron. Of his majesty we may confidently affirm that throughout the long line of British monarchs there has reigned none more closely connected with the medical profession, and none a more constant and munificent supporter of its great charities and institutions.

The first visit of the Association to Cheltenham was the fifth of its annual meetings, and was held under the presidency of Dr. Boisragon. In 1837 the Association comprised 940 members only. Now it is a great and powerful body, numbering nearly 19,000, when we include its 30 Branches in the British Colonies and in India. To us who have lived long in Cheltenham—and I have lived here fifty years—there is no more favoured spot. The words of Horace—

*Ille terrarum mihi praeter omnes
Angulus ridet,*

express my feeling and that of most of our old residents; and right glad I am that the leaders of British medicine should come here once again, to spend four days of work and inquiry, of comparison and sifting of facts in our garden town; for we have nothing to fear, but much to gain from their presence and close scrutiny. The town of Cheltenham, originally a royal manor of great antiquity, is, so far as its present aspect is concerned, comparatively modern, and owes its present position and popularity to two chief causes, its waters and its educational establishments.

You will notice how we lie on a gentle slope of the Cotswolds, with a natural drainage towards the Severn. You will see how sheltered we are on the east, and how open to the north and west ; whilst from most directions the air blows on us, fresh and pure, either from the open wolds of the neighbouring hills, or from the valleys of Evesham and Gloucester. Our water supply, mainly from the hills, is pure and good. It contains lime, but not enough to produce calculous disorders, though sufficient to supply a needful constituent for growth and nutrition, so as to constitute one great factor of the high salubrity of Cheltenham, and of its reputation as a home for youth. Ascend the hills, and you will see that our town is a garden of broad roads, with innumerable trees, oxygenating and renovating the atmosphere under the influence of light. The use of its waters dates from about 1716, soon after their discovery by the pigeons who were wont to pick up the saline particles left by their evaporation, as they flowed to waste unnoticed—a circumstance commemorated by the pigeons on our municipal arms. The original Cheltenham spring is within a short distance of this great Hall, which marks the spot where the waters of another well were formerly imbibed by King George III and many thousands of invalids. Tennyson, who composed much of his *In Memoriam* here, was thinking of Cheltenham when he wrote the lines :

There rolls the wave, where grew the tree,
On Earth, what changes hast thou seen,
Where the long street now roars, hath been
The stillness of the central sea.

Beneath the town are vast saline deposits, the relics of this "central sea." The springs becoming charged with brine, percolate afterwards through deposits of iron pyrites, oxidation of which yields the sulphates that so largely characterise the Cheltenham waters. The constitution of most of the springs is nearly the same as those of Carlsbad, with the exception that the last are hot, and contain in addition more carbonate of soda and free carbonic acid, a deficiency easily supplied by the addition to our local waters of a little hot Vichy or Vals, and thus we obtain a curative means of still greater efficacy in some cases.

After the pigeons had discovered the waters they gradually increased in popularity, until at last kings, princes, lords, and commonalty flocked to the healing springs. Of the celebrities of eighty-five years ago it will be simplest to state that they all came here, and found their advantage in so doing. The use of our waters, like those of Carlsbad, is mainly for affections of the stomach and liver, and their efficacy in the diseases of Anglo-Indians made Cheltenham, soon after its general reputation was established, one of their specially favoured resorts, as it remains to this day. The waters are with us still, and their virtue is unimpaired, but the celebrities come no longer. The poor use them with the greatest benefit, but the rich for the most part go elsewhere—to Carlsbad or Homburg, for instance, where their amusements, at any rate, are much better provided for. The principal wells have now passed into the keeping of the Corporation, and the greatest care is taken to ensure the purity and uniformity of their yield. I can assure all gastric and hepatic sufferers that if they will only drink the montpellier saline or the No. 2 Pittville, warm, as they do the similar waters of the Continent, early in the morning, in repeated small draughts, taking exercise between them, they will find them not one whit less efficacious than the very best of the springs of Germany ; and I sincerely hope that most of those here present will make a practical trial of them and recommend them. I will ask further that they should look at the results of Professor Thorpe's recent analyses of our waters, and compare them with those of the best-known German springs ; when they will at once perceive how immeasurably superior are the former to most of the latter, to Hom-

burg and Wiesbaden, to Kreuznach and Kissingen, for instance. In the Nos. 1 and 3 Pittville, we have an extremely salt water, almost identical with that of Wiesbaden, and some years ago the Spa Medical Committee and a sympathising body in the Corporation projected a sumptuous set of medical baths, in which this salt water, heated, would have been utilised. A vast deal of trouble and expense were gone to, though the scheme, which would have been most advantageous to many invalids and to Cheltenham, was finally wrecked, owing mainly to the opposition of our temporary residents. And thus it is that, to the keen disappointment of many, we cannot show you our new Bains de Luxe, with which we had hoped to restore some of the old therapeutical fame of Cheltenham. These we cannot show you, but we will ask you in their place to inspect our new public baths, which for art, science, and luxury are not, I believe, inferior to the best anywhere.

This would seem to be the right place for mentioning some of our medical worthies of the past : Dr. Baron, the biographer of Jenner (of whom more presently) ; Dr. Henry Wyldbore Rumsey, F.R.S., the pioneer of sanitary science, who filled the Chair of Public Medicine at the Newcastle Meeting of 1870 ; Charles Fowler, one of the founders of the Cheltenham Hospital, who ranked among the first of the provincial practitioners of fifty years ago ; Clement Hawkins, the fellow-student and lifelong friend of the late Sir James Paget, a most successful practitioner, blunt and direct, but the soul of kindness and honour, whose name is still gratefully enshrined in the recollection of an extensive circle ; Dr. Evans, of Gloucester, the first president of our Branch, our chief consultant of thirty years ago, a physician equal in kindness and accomplishment, in insight and generosity ; Dr. Wright, F.R.S., our first medical officer of health, a student of nature from his youth, a most accomplished geologist, anatomist, and surgeon, the most original and interesting man I ever met, whom to know was to admire, and with whom to be intimate was an education. Drs. Baron and Rumsey and Mr. Fowler were present at the last Cheltenham meeting ; at which I find also mentioned the well-remembered local names of Allardyce, Bernard, Coley, Cooke, Eves, and Gibney. I hope that you will report kindly and favourably of our town, of its advantages generally, and of its educational establishments in particular ; of its successful College, the first of the great modern public schools, and of its unparalleled Ladies' College, where we meet to-night, and where all of our Sections will be accommodated. Nor must I omit to name our ancient and yet completely modern Grammar School, our great training colleges for teachers, and that splendidly-managed young giant, Dean Close School. What we have lost as a spa we have more than regained as a centre for education. It may be that some of our arrangements are not yet quite perfect, but the Corporation is wide awake, and determined always to remember the motto of the town, "*Salubritas et Eruditio*."

THE FOUNDATIONS OF MEDICINE.

"*Homo sum, humani nihil a me alienum puto*," and this sentence of Terence may well be taken as descriptive of the modern practitioner of medicine. Is there nothing revolting in medical and surgical training and practice, in the year of dissection so wisely exacted from every medical student, in the indispensable work of the deadhouse, in the examination of patients, and in many operations of surgery and obstetrics ? There is much, no doubt, repulsive to us at first in our professional education, but the cheering thought of doing service to our common humanity removes the feeling of abhorrence that would otherwise overcome us. As we for others, so others willingly for us ; for sooner or later the medical man himself must seek the help of his fellows. Age, infirmity, mortal illness must come to him too in his turn, and so during his days of activity he

must shrink from nothing which is repulsive, and hesitate at nothing which is disagreeable, if only he may know more fully and act more precisely. To me "*Homo sum, humani nihil a me alienum puto*," is the most inspiring and the most comforting of mottoes.

Man's body is our chief care and study, its anatomy, its physiology, its diseases and injuries. Of anatomy we may say that it is the indispensable basis of medicine and surgery, and I can honestly state that I have never known a conspicuously successful practitioner who was not a good anatomist. To the younger members of the profession I would say, Never lose your grasp of anatomy, dissect whenever you have the opportunity, and as regards your anatomical manuals "*Nocturnd versate manu, versate diurna.*" Physiology teaches us that which is in accordance with Nature, and if we would recognise that which is abnormal or diseased, that which is pathological or contrary to Nature, it follows that we must ever keep before our eyes the physiological standard, the normal processes, reactions, and chemistry of the human body. Then of diseases themselves or variations from the normal we may recognise that many are essentially derangements of function, such as catarrh, anæmia, diabetes, gout; whilst others are due to true anatomical changes, such as chronic Bright's disease, atheroma, hemiplegia, valvular disease of the heart, and cirrhosis of the liver. Others again, like anthrax, phthisis, glanders, typhoid, tetanus, and diphtheria are due to parasitic invasion. Indeed a division of diseases may be made into anatomical, physiological, and parasitic; the last including tumours, of which the malignant or infective are especially parasitic. Composed as such tumours are of the natural cells and tissues of the body, and apparently of nothing else, but passing out of their proper location and vocation (and this is the doctrine of Ribbert published in 1895), and arrogating to themselves the licence of unlimited multiplication and growth; and remembering that there is no sharp line of demarcation between the animal and vegetable kingdoms, it has always seemed to me that the occurrence of a malignant tumour implied a reversion to a condition of life that is neither animal nor vegetable, but intermediate and parasitic. Degerenerating from their high position in the scale of being, some of our connective tissue or endothelial or epithelial cells, as the result of malnutrition (as Sangalli asserts), or of irritation, or under the influence at first of some specific organism (some blastomycete) as Thoma, Scheerlen, Korotneff, Russell, Sanfelice, and Roucali have asserted, comport themselves somewhat as the yeast fungus, itself a blastomycete, in a suitable medium would do, growing ever and working never (as Adami suggests), and soon, unless the surgeon interposes quickly and boldly and removes root and branch the malfic colony, the whole body becomes contaminated by the animal fungoid, which soon destroys its life. However numerous the departments of medical science may be—and we have thirteen represented at this meeting—anatomy, physiology, and pathology, being the true foundations of medicine, should always occupy a very large share of our attention.

ONE HUNDRED YEARS AGO.

The medical orator of to-day, standing, as it were, between two centuries, must naturally, whilst regarding the present glance also backwards and forwards. Now what was the condition of medicine a hundred years ago? Well, thanks to the work mainly of Haller of Göttingen, and of Morgagni of Padua the old Mysticism had to a large extent been dissipated, and a physiological foundation was laid by the first and a pathological one by the second for that vast super-structure of facts on which are based the medicine and surgery not only of 100 years ago, but of to-day. Haller and Morgagni were true disciples, though at a considerable interval, of Vesalius, who, following Mondino de Luzzi, first broke completely through the deadening influence of the Galenical tradition and founded human anatomy on direct ob-

servation alone. Then it was that the paralysing effect of the Roman edict of the first century was effectively removed, that for 1,200 years had arrested the progress of anatomy, and with it all medical and surgical progress, by forbidding *post-mortem* examinations—just as many good people now would tie our hands in other directions, and keep us stagnant till the world grew wiser.

It was the great mediæval ruler, the Emperor Frederick II, of the illustrious house of Hohenstaufen who once more after its long neglect, revived the study of practical anatomy in the thirteenth century by forbidding the practice of surgery to any but well-instructed anatomists, an injunction which led to the establishment of a school of practical anatomy at Salerno, in Lower Italy, and soon afterwards of another at Bologna.

The schools of Salerno and Bologna, with those of Milan, Montpellier, and Padua were, however, still too reverent of antiquity, and it was not before the advent of that greatest of anatomists, Andrew Wittings, commonly known as Vesalius (from Wesel on the Rhine, the original home of his family), who taught at Padua, Pavia, Bologna, and Pisa between 1539 and 1564, the reappointed, though never the actual successor of his own pupil Fallopius at Padua, that modern anatomy really began. I say reappointed, for he had been professor before at Padua, when he was only 23 years old, and after long wanderings, occasioned by accusations of impiety, had been honourably recalled, when, owing to a shipwreck, he lost his life—of such priceless value to science—at the too early age of 49. I must not attempt to describe the discoveries of Vesalius, though I may mention that apart from his well-known corrections of the osteology of Galen, it is to him that we owe our first exacter knowledge of the inferior vena cava, the vena azygos, the ductus venosus, the cerebral ventricles, the pterioneum and the internal ear. One hundred and fifty years later arose one of Boerhaave's scholars, Albrecht von Haller, of Göttingen—himself a great anatomist—who, animated by the teachings of Vesalius, by his love of truth and Nature, and by an aptitude for physiological research, which was all his own, stands forth as the father of modern physiology.

In 1791 Morgagni of Padua (a pupil of Valsalva, whom he constantly quotes) published what Matthew Baillie styled his "stupendous work" on the *Seats and Causes of Disease, investigated by Anatomy*, thereby at once earning the title of the Father of Pathology.

Vesalius, Haller, and Morgagni were the true founders of modern medicine, and we cannot even now peruse their writings without instruction and surprise. It was Glisson—Harvey's successor in the Anatomical and Surgical Chair of the College of Physicians (not Royal in those days)—who first declared that the great characteristic of living matter is that it moves, the ground of motion being irritability; but it was Haller who first distinguished between muscular irritability and nervous sensibility (the vital properties of Bichat), and explaining the great facts of physiology as largely dependent on both, removed at once the *deus ex machina*, the extraneous spirit, so fondly imagined by the old physicians. The Pneuma of Hoffmann, the Nervous Liquor of Mead, the Anima of Stahl, the Archæus of Van Helmont, being no longer hypothetically needed, were gradually discarded. So it was that Haller and Morgagni, the great physiologist and the great morbid anatomist of the eighteenth century led up to the improved practice of 1801 and later. This was to some extent due to John Brown of Edinburgh, the representative in modern times of the so-called "Methodists" of the first century. Brown it was who first divided diseases into athenic and asthenic, who first gave beef-tea in debility and who first fed fevers. The Brownian or Brunonian system or the plan of stimulating or lowering as required obtained a large vogue at the beginning of the nineteenth century and still largely influences the practice of to-day. It must

be freely conceded, however, that the highly philosophical doctrines of Brown were by no means judiciously or consistently carried out by himself and his immediate successors.

One hundred years ago Laennec was prosecuting those studies the result of which were to constitute him soon afterwards the medical guiding star of France, and later of the whole world; and after him ranked Bichat, the anatomist, and Broussais, the physician. It is doubtful if anyone ever accomplished so much for medicine during a short life of 31 years as Bichat did. Our own Hewson, who died at the age of 34, comes nearest to him. In one winter alone Bichat dissected 700 bodies. I cannot stop to enumerate the discoveries of this "Napoleon of medicine," as he was then called, though I may mention that it is to him that we owe the discrimination of pneumonia, pleurisy and bronchitis.

According to Broussais irritation or inflammation accounted for most diseases, and bleeding was the most general and most trustworthy treatment. For leeches (first used in European medicine at Rome in the first century) he was the greatest enthusiast the world has ever known having used 100,000 in his own practice in a single year. The importation of leeches into France in his time amounted to over 41,000,000 a year! There can be no doubt that treatment by bleeding was formerly sadly overdone, but the pendulum has now swung too far in the opposite direction, and I cannot doubt that lives are now lost for the want of it. I have myself seen desperate cases of pulmonary obstruction in which I have advised it, but friends objected, and not one of these cases were saved by its omission. On the other hand, at a meeting not long ago of our local Branch at Gloucester some remarkable cases were brought forward of the recovery from epilepsy, puerperal convulsions, and from apparently hopeless pneumonia after free bleeding.

Among the other great names of France a hundred years ago I should mention Bayle, Bretonneau of Tours and Alibert, and the Surgeons Boyer, Larrey, Roux, and Dupuytren, a galaxy unmatched then in any other part of the world. Small wonder that the earnest students of all nations flocked in those days to Paris, and still more so a few years later, when we should need to add to our enumeration the names Corvisart, Cloquet, Louis, Cruveilhier, Andral, and Bouillaud; just as they are now flocking to Germany, and will soon, I believe, betake themselves to America, and hereafter to London, if only its newly reconstituted teaching university turns out as successful as we all hope it may be. I sincerely trust that this new departure may make full amends for the university that we were promised ten years ago, which was to have been named after that most enlightened member of our Royal Family, the late Prince Consort to whom more than to anyone else we owe the establishment of scientific teaching in England. A hundred years ago we had in London Heberden, Willan and Ballie. The first has left us his *commentaries*, which are a mine of acute and accurate observation. I would refer especially to his chapters on jaundice, dropsy, and paralysis. He it was who first described varicella and angina pectoris. The second was the father of modern dermatology and the third is universally acknowledged to have been one of the greatest pathological teachers at the close of the eighteenth century. Other English names of the same period are those of Sir Charles Scudamore, Sir George Baker, Sir Henry Hallford, Dr. Thomas Young (so imperishably connected with the theories of the light and colour), Dr. Lettsom, and Mr. Cline.

In Edinburgh the chief medical authorities a hundred years ago were Benjamin and John Bell (the younger), John Cheyne (afterwards of Dublin), and John Thomson, and in Dublin Sir Philip Crampton and the Surgeon Abraham Colles. In 1801 William Blizard, Abernethy, Charles Bell, and Astley Cooper had climbed, or were climbing, the ladder of their fame,

the latter with no rival in Surgery save the great name of Dupuytren. In Germany the most noted names in surgery were those of C. J. M. Langenbeck, Wutzer, Hesselbach, Richter, and Von Textor; and in Italy Antonio Scarpa, of Pavia. In America I would mention the physicians Rush (the Sydenham of America), Waterhouse, Dexter, and Rowan; and the surgeons Physick, Warren, Nathan Smith, and McDowell. A hundred years ago Edward Jenner was practising in Cheltenham, and here the *genius loci* reminds me that I must not dismiss our greatest medical celebrity with a single line. To me the most interesting point about Jenner is that he was educated by John Hunter which is to say that he became and remained a naturalist. He was not however, neglectful of medicine—indeed he manufactured and improved tartar emetic—but he was at first more interested in fossils, hedgehogs, and Cuckoos. His celebrated paper on the cuckoo, describing for the first time the inconsiderate conduct of the young cuckoo to his fellow-nestlings, need not be referred to here further than to state that for a long while he reckoned a personal visit to all the young Cuckoos in his neighbourhood as the first of his or his nephew's duties in May and June. It was this kind of training in natural observation which led at last to such productive fruit as his celebrated *Inquiry into the Causes and Effects of the Variolæ Vaccinæ*, published in 1798. Wishing to test a tradition of Berkeley, where he was born and practised at first, as to the small-pox immunity conferred by cow and swine pox, and fulfilling Hunter's injunction, "Don't think, but try," he made his first experimental inoculation from swine pox on his eldest son, aged 1½ year, in November, 1789. It was nearly eight years afterwards before the next step was made, for it was on May 14th, 1796 (two years before the publication of his book) that lymph was taken from the hand of Sarah Nelmes, of Berkeley, who had been infected by her master's cows, and was inoculated into the arms of James Phipps, a healthy boy, 8 years of age. A typical vesicle and areola were produced, and two subsequent attempts to inoculate James Phipps with small-pox proved perfectly futile. Jenner next sent lymph to London to Mr. Cline, whose patient also resisted all attempts to inoculate him with small-pox. Jenner was thereupon invited to London, and wrote from Cheltenham in reply on September 29th, 1798, his often-quoted letter in which he expresses his preference for the "lowly and sequestered paths of life, the valley and not the mountain," declaring his contentment and contempt of fame and fortune, "fame being only a gilded butt, for ever pierced by the arrows of malignancy." He took up his regular abode in Cheltenham in July, 1800, living at first in the High Street, and afterwards at 8, St. George's Place. Though often absent he spent much of his time here for many years, as letters of his dating from 1802 to 1813 testify, vaccinating gratuitously at Alpha House Bayshill, the residence of the present Mayor of Cheltenham, all the poor who made application to him.

Well, ladies and gentlemen, you know the rest, the rapid extension of the practice the world over, the parliamentary grants to him of £30,000, his medals and diplomas and honours from every nation and the tardy and unwilling acceptance of his teaching by his own. Later came detraction, obloquy, and neglect followed at last by 443 small-pox deaths in 1896 in his own county, in the neighbouring city of Gloucester; and finally the perilous experiment of leaving the decision as to whether vaccination should be done or not to the discretion or indiscretion of each head of a family. I am bound, however, to state that the perilous experiment is turning out much better than could have been expected. Truly you will mourn with me over those 443 preventable deaths in Gloucester, 1 of them of a vaccinated and 297 of them of unvaccinated children under 10 years of age, when you reflect that during the same year and the next one there were, in

well-vaccinated and revaccinated Germany, only 15 deaths from small-pox throughout a population of 53 millions. Does anyone want more proofs? If so they have them in the records of our own profession, which suffers from a general zymotic mortality far beyond, but from a small-pox mortality far below, the average; and this though we of necessity are much more than the general public exposed to the infection of small-pox. We ladies and gentlemen, know the truth and how to act up to it, and most earnestly do I wish success to Dr. Bond and to the Jenner Society in their truly philanthropic enterprise of combating error and disseminating truth. I will say no more of Jenner and his work, though in this town, the former centre of his activity, I could not well say less. I must, however, add that the sad experience of Gloucester has not been fruitless, and that Jenner's country is now perhaps the best protected against small-pox of any in England.

In 1801 Auenbrugger, the inventor of modern percussion, was still living in retirement at Graz at the age of 81, and Wichmann, the discoverer of the part played by the itch insect in scabies, was practising at Hanover. But the great medical awakening of Germany had not begun though its two chief agents were then living, but young, namely, Romberg, the founder of modern neurology, and Schönlein of Berlin (originally of Würzburg), who gave the first impulse to scientific medicine in Germany, and who is well known to most of us as the discoverer of the fungus of favus. If I have omitted a few noted names of the epoch, it is because their bearers had expired (like John Hunter) a few years before 1801, or because, like Abercrombie, Addison and Bright, Brodie, Earle, Guthrie and Lawrence, Dieffenbach and von Chelfus, they were youths only when the nineteenth century began. If I have mentioned discoverers rather than discoveries it is because the time at my disposal would not suffice to narrate even a tenth of the latter. Modern surgery had not begun in 1801—the advent of a Lister was necessary for that—though Hunter had taught us in 1785 how to cure popliteal aneurysm, and Petit and Brasdor, Chopart and Desault, Cheselden, Gimbernat, and Pott had not lived and worked in vain during the eighteenth century, nor failed to hand on great facts and principles to their successors. Many admirable, mostly ancient, drugs were in vogue in 1801. To mention a few of them: Aconite and colchicum, mercury, arsenic, iron, antimony, bismuth, bark, belladonna, digitalis, ipecacuanha, the vegetable aperients and bitters, the common acids, alkalies, and salines, and of course, opium. In fact, a very fair selection of “the blessed infusions that dwell in vegetives, in metals, stones,” to quote Lord Cerimon in *pericles*. And these drugs were well and ably wielded and with boldness and success. “We want no more drugs,” said an old doctor to me some years ago, “but to use better those we have.” There is much truth in this, for it is impossible to note without alarm the yearly increasing invasion of new, chiefly synthetical, remedies, many of them by no means harmless. Fortunately the law of the survival of the fittest soon comes into operation and the useless ones are quickly relegated to that obscurity from which they had never emerged without the well-intentioned by too hasty laudations of overzealous men of business. The old doctor did not give a quotation, though a line in Homer's fourth *Odyssey* expresses something of his feeling—

φάρμακα, πολλὰ μὲν ἐσθλὰ μεμυγμένα πολλὰ δὲ λυγρά.

which I may thus paraphrase—“some drugs are most excellent and others quite the reverse.” I wonder what that admirable writer, the author of *Ecclesiasticus*, would have said had he lived in these days? He who, referring to his own times, wrote that, “of the works of the apothecary there is no end and from him there is peace over all the earth? I think *Ecclesiasticus* might be oftener read than it is, and so it would be, said

Addison, if "such shining tracts of morality had appeared under the name of Confucius or of any celebrated Grecian philosopher." How admirable is the following and how excellent its precept!—"The Lord hath made medicines out of the earth: he that is wise will not abhor them." Also this: "He that sinneth let him fall into the hands of the physician." I strongly recommend a medical reading of *Ecclesiasticus*. It may not be quite so instructive as *Don Quixote*, recommended by Sydenham to Sir Richard Blackmore as the best medical treatise of his time, but it will certainly prove interesting and very soothing to the *amour propre* of our profession.

We must not, however, discourage pharmacological research and effort altogether, for the practitioner of 1801 had neither iodides nor bromides; no chloroform, pepsine, carbolic acid, cocaine, nor quinine; no salicylates; no chloral; no morphine; nor strychnine, nor atropine; and how could we practise without these and many others now?

Seeing how large is our modern armamentarium, and how undoubtedly effective many portions of it are, one would be inclined to pity the practitioner of 1801, were it not equally certain that the practitioner of 2001 will pity us.

As regards the practice of to-day, that middle point of the centuries to which I referred, it is not too much to say that the whole realm of Nature—animal, vegetable, and mineral—has been ransacked to find remedies against disease. Not only so, but every available physical force—heat, light, and electricity—have been pressed into the same service.

It is in the use of antitoxins and animal extracts, however, that the most remarkable advances have been made, and I would ask once more, how could we get on to-day without diphtheria antitoxin and without thyroid extract?

"If they do these things in a green tree what shall be done in the dry?" I must leave it to others to predict the therapeutical standpoint of 100 years hence. This much, however, may be safely affirmed, that as the general public of to-day expects to be cured with all expedition, the public of the future will expect even more in proportion from the practitioner of 2001.

THE MEDICAL STANDPOINT OF TO-DAY THE RESULT OF SCIENTIFIC RESEARCH.

Pondering over medicine as it stands to-day, the main fact that strikes me about it is, how much more it owes to the biologists and to the men of pure science than to the so-called practical men. The practical man is indispensable, but he is not like the great biologists, a High Priest of the Arcana of Nature. The cell theory, for example, lies at the very foundation of modern medicine, and this theory certainly originated entirely with the biologists. The term "cell" was first used in reference to plants in the seventeenth century (1665) by Hooke, who, with his contemporaries, Grew and Malpighi, distinctly foreshadowed the cell theory of modern times. The cell nucleus was actually seen and drawn by F. Bauer so long ago as 1802 though it was not before 1831 that it received that name from Robert Brown, the botanist. Little notice, however, was taken of the subject before the publication of Schleiden's paper on *Phytogenesis* in *Müller's Archives* for 1838, in which he asserted that "every plant is an aggregate of individualised, independent, separate beings—namely, cells." Theodor Schwann, also in the next year, made a similar assertion regarding animals in his *Microscopical Researches*, of which, and of Schleiden's paper also, Sydenham Society published a translation in 1847.

Schwann was first impelled to his conclusion by noticing the extraordinary resemblance between the microscopic structure of the chorda dorsalis of the tadpole and that of the onion and of certain pollen matrices.

Schwann, however, fell into error in asserting that cells arose spontaneously, and here he was set right by Barry in 1838 and later by Goodsir, who established the direct descent of every cell from a pre-existing one. This is Virchow's "continuity of life," his *omnis cellula e cellula*, the aphorism which he offers us in the place of Harvey's *Omne vivum ex ovo*.⁶ That *punctum saliens*, the nucleolus, was first noticed by Schleiden, though it was Schwann who gave it that name. Next came Hugo von Mohl in 1846, who recognised what we now call protoplasm in the cells of plants; the identity of which with a similar substance in the cells of animals was soon afterwards proved by Cohn and Remak. To Schwann a cell without a wall and a nucleus was no true cell, but Leydig in 1856 adduced pus and mucus corpuscles as instances of wall-less cells, and so step by step the ground was cleared for the now historical Cellular Pathology of Virchow, which influenced so profoundly the medical thought and practice of forty-three years ago. To Virchow as to Schwann a cell wall was a necessity, though this idea was soon afterwards dispelled by Lionel Beale and independently by Max Schultze in 1861. To Max Schultze we owe not only the extension of the term protoplasm (the bioplasm or living matter of Beale) to the contents of animal cells also, but the best description of an animal cell, namely, that it is a protoplasmic mass containing a nucleus; though even this last, we may add, is non-essential. All this work on the cell theory gave the original inspiration to Pasteur, and Pasteur leads up to Lister, of whom I will forbear to speak, for he needs no speech, though he might well say of himself, *Quæ regio in terris nostri non plena laboris?* I may mention this significant fact, however, that visiting the Polyklinik in Vienna two years ago, I noticed that the only name of a contemporary Briton inscribed on its façade was that of Lister. The cell theory, further leads up to bacteriology, the most imposing and the most impressive department of medical biology.

Now bacteriology, which originated with the labours of Cohn and De Bary, rests on cultivation and staining; and if year by year more and more of the germs of disease are recognised, it is because improved methods are constantly being perfected for colouring and making visible these formerly invisible entities. The modern practice of staining, so essential to the physician and surgeon of the day, began with the botanists Göppert and Cohn, who used carmine in 1849, and here again the pure scientists showed the way to the practical investigators of medicine, such as Gerlach of Erlangen, who first applied the method to anatomy. In 1871 and later Weigert succeeded in demonstrating nuclei by ammoniated carmine, and cocci by methyl violet. In 1872 Eberth and Wagner began the use of that admirable stain, hæmatoxylin. Looking through some old preparations of mine not long ago, I found that most of those stained with aniline dyes were faded, but those stained with hæmatoxylin were still bright and good. In 1879 Ehrlich enunciated his remarkable generalisation that the basic coal tar colours (like fuchsin, methylene blue, and methyl green and violet) stain nuclei; whilst the acid ones (like orange-green) stain plasma, and the neutral ones (like eosin and picric acid) stain special cell contents. Weigert, later, found that acid fuchsin was specially useful in the study of the nervous system, and Strasburger, the botanist, used the basic methyl-green to demonstrate those mitotic figures which are of such importance in embryological work, and have afforded a basis for the witle generalisations of the biologist Weismann. Nor need I pursue the matter much further than to state that in 1882 Koch, who had previously devised the method of cultivation of bacteria, first stained with methylene blue and thus discovered the bacillus tuberculosis, the consequences and far-reaching results of which discovery are well known to all of you. That I have said so much on this point is to strengthen my contention that the true basis of modern medicine

is essentially scientific. As an admirable instance of the kind of debt that modern medicine owes to bacteriology, of its power and promise, as also of the extreme difficulty and complexity of the subject in its recent developments, I cannot do better than to advise the re-perusal of Dr. Horton-Smith's Goulstonian Lectures on Typhoid Fever.

In surgery the discovery of the Roentgen rays has been of priceless benefit, and the Cheltenham Hospital was, I believe, among the first of provincial hospitals to make use of them, but most certainly Roentgen was thinking of nothing less than of surgery when in the modest Physical Institute of Würzburg he undertook his epoch-making research on the cathodic rays of Sir William Crookes. I have been to that modest but celebrated laboratory at Würzburg, and heard there the true story of the discovery, which I must not here stop to relate, though I may remark that I have never seen it correctly reported in English.

I spoke of the antitoxins as among the most valued resources of remedial art, and it is to strictly scientific investigators, to such men as Loettler and Roux, Behring and Kitasato, Haffkine and Yersin, that we owe these great discoveries.

Soon, I believe, we shall possess antitoxins for most of the febrile and infective diseases, as undoubtedly effective as is that one now so successfully employed against diphtheria. Personally, I place much faith in the antityphoid inoculations of Professor Wright, of Netley, and in the antitetanus serum; and I feel sure that many more equally effective and similar means will soon be in our hands against other diseases. But it is not the practical physician and surgeon who will discover them, but the intellectual devotees of pure science, steadily pursuing, through good and evil report, their self-appointed task of universal beneficence.

The animal extracts stand on a different basis; the basis of secretions destined not for excretion but for internal and bodily use, as first divined by Claude Bernard; and so indispensable that without them disease or discomfort at once arises. I forbear to do more than allude to the recognition of myxœdema by Sir William Gull in 1873, to its naming and the discovery of its connection with an atrophic condition of the thyroid gland by Dr. Miller Ord in 1877; and to the discovery by Mr. Victor Horsley in 1890 of its antidote in thyroid transplantation, for which Dr. G. R. Murray, of Newcastle, soon afterwards substituted subcutaneous injection of thyroid extract, and Dr. Hector Mackenzie the much pleasanter method of thyroid feeding. I likewise merely mention ovarian extract, which often mitigates markedly the miseries of the menopause, and suprarenal extract, which, with its extraordinary power of contracting blood vessels and of consequently raising the blood pressure, must necessarily have a great future in therapeutics. The animal extracts (not wholly unknown to the Ancients, though first studied in modern times by Brown Sequard) have, doubtless, a great future in practical medicine; and ere long many more will be in use, though doubtless some, already proposed, will fall short of their promise and pretension.

In thinking of the standpoint of to-day, I next recall the splendid work—purely scientific again—of the French and Italian investigators of malaria, of Laveran in 1880, and more recently of Marchiafava and Celli, Bignami and Grassi, but more especially of Golgi, who first proved that the feverish attacks coincided with the sporulation of the malarial amœbæ. To which I am pleased to add, that it is, as you know, the President of our Tropical Diseases Section, Major Ronald Ross, who, following the promptings and surmises of Dr. Patrick Manson, has discovered nearly the whole life-cycle of the protozoön, and not only that, but has identified the true delinquent and disseminator of malaria with the mosquito *Anopheles*, a fact subsequently demonstrated by experiment on a human subject by the celebrated

Italian biologist, Grassi; and still more recently by the experiment at Ostia in the Roman Campagna, where Drs. Low and Sambon and three others living by night for four months in their mosquito-proof hut, retained their health; whilst Messrs. T. P. Maunson and George Warren (courageous sufferers for science), bitten in London by infected mosquitos from the Sancto Spirito Hospital in Rome, developed soon afterwards every symptom of malarial fever. It seems that the hæmamoebidæ of malaria pass the whole of their life-cycle between animals and mosquitos, and Dr. McCallum of Baltimore has further supplied the missing link of their sexual reproduction in the mosquito only. But the original hæmamœba can hardly have evolved itself in either. Whence, then, can it have originated? That is a question which I cannot answer, though I may refer to the statement made by Captain L. Rogers, I.M.S., officiating Professor of Pathology in the Medical College of Calcutta, that where pure and filtered water is drunk there but little intermittent fever will be met with. At all events, it is quite clear that vertebrate animals are the intermediate hosts of the malarial germ, and that it has hitherto never yet been found in water or anywhere else, save in mosquitos and in some vertebrated animals only. Elephantiasis, whose hæmatozoon, the *filaria nocturna*, was discovered in the blood by Surgeon-Major Timothy Lewis in 1872, is distributed by another mosquito, the *Culex pipiens* or *ciliaris*, as first proved by Dr. Manson. And even this does not exhaust the delinquencies of these dangerous insects, as there can be little doubt that they also disseminate yellow fever; witness the experience of the American army surgeons in Cuba, where that scientific martyr, Dr. Jesse W. Lazear, though isolated from yellow fever cases, yet died of it seven days after submitting to the puncture of an infected mosquito, and Dr. James Carroll, under similar conditions, narrowly escaped with his life. This particular mosquito has recently been recognised by the United States surgeons as the *Culex fasciatus*, and it is probable that the transmission of yellow fever is due to it alone. The study of tropical diseases has, in fact, now become a refined department of biological investigation. Smith and Kilborne have shown the part played by ticks in disseminating the cattle fever of Texas, and ticks also are said to be responsible for the miana disease of North Persia, and for a dysenteric fever of the Zambesi. Some forms of dysentery, as first suggested by Lösch in Russia in 1875, are probably originated by an amœba. In this town of Cheltenham old cases of malarial fever are often met with in returned officers and civilians, and I have yet to see the case that will resist six subcutaneous injections of 3 grs. each of the acid hydrobromate of quinine.

What would have been the state of ophthalmology to-day without the invention in 1851 of the ophthalmoscope by the physicist Helmholtz? Then consider the benefits conferred by electricity. It may be that great results will follow some day from cataphoresis, or the electrolytic introduction of drugs, recently written about by Dr. Morton. At all events, there is no doubt in my mind as to the benefit in gynæcological work conferred by the treatment of Apostoli. Dr. Thomas Keith is not likely to have been mistaken in this matter, and what I have myself seen of permanent cures of really serious cases makes me feel sure that the Apostolian treatment for fibroids is not the delusion that some persons, who perhaps have not quite mastered it, proclaim it to be. It is, indeed, tedious, uncomfortable and troublesome, and I for one shall be only too pleased if Sneguireff's simple treatment by superheated steam should prove itself an efficient substitute. Then there is the marvellously successful treatment of lupus by the chemical rays of the electric arc, devised by Finsen, of Copenhagen, though it is a question again if these results are any better than those of Hannover, speedily obtained by a simple jet of heated air (atmokaussis).

Where should we be without the scientific chemists: to cite a few names only--Courtois, who gave us iodine in 1811; Balard, who gave us bromine in 1826; Serullas, who discovered iodoform in 1822; Soubeiran, who discovered chloroform in 1831; Liebig, who discovered chloral in 1832; and Niemann, who gave us cocaine in 1860! Not one of these was a practitioner of medicine, nor, unfortunately, a Briton.

MORE UNIVERSITIES AND RESEARCH INSTITUTIONS NEEDED.

I think I have said enough to prove that the progress of pure science means medical progress also, and that it is to the men of pure science that we must still look to hold aloft for us the torch of progress. I can only hope that in the great advances still to be made Great Britain and Ireland may play their worthy part; but I confess I have my misgivings unless some improvements are made in our educational arrangements. As the result of several recent Augusts spent in many of the Continental capitals, I have been struck with the thoroughness and scientific spirit everywhere there manifested; being very different, I regret to add, from the antiscientific spirit which characterises most of the wealthier and more cultivated classes in this country. This antiscientific spirit is only eradicable by the better education of the young. To what other cause can we ascribe the fact that although the aniline dyes were discovered in 1858 by an Englishman, Dr. W. H. Perkin, yet almost the whole of their manufacture is now carried on in Germany. One company, the Badische Anilin und Soda Fabrik, employs 146 scientific chemists, 75 civil engineers, and 6,300 workmen in one alone of its three factories. I know not if any words of mine will reach the eyes of those who govern in this country, but if they do, I will implore them to give to our youth more facilities, similar to those enjoyed on the Continent and in America. I know that much has been done, and no fault is to be found with our primary education. The National Physical Laboratory and the Jenner Institute of Preventive Medicine, have been established, the former in principle, the latter in reality, thanks to the splendid munificence of Lord Iveagh. New colleges, universities, and technical schools have been started, and some 15 to 17 research scholars are appointed every year, one half of whom, I may remark, proceed at once to Germany to make their researches! What has been done, however, is as nothing to what ought to be done.

The defences of the empire must not be overlooked, but of what avail will be those defences, if our trade is gradually lost for want of exacter knowledge? For trade and medical progress, and those very defences themselves, rest entirely upon progressive science.

Depend upon it, there is as much scientific ability and aptitude for research in the country of Cavendish and Priestley, of Faraday and Kelvin of Darwin and Huxley, of Jenner and Lister, of Rayleigh and Ramsay, as in any foreign nation; but here the chances and opportunities are much fewer, and many a great discoverer that might have been, one of whom it might have been written that—

He broke his birth's invidious bar,
And grasped the skirts of happy chance—

spends his untrained energies in futile efforts and vain regrets, and wholly wastes his commanding intellect for the want of instruction and opportunities easily accessible.

But the cost? It would be as nothing in proportion to the gain, and a Faraday, a Koch, or a Pasteur would be a cheap purchase at a million. Whereas France, Germany, and the United States educate at their universities approximately one student in every 1,500 of the population, we in the United Kingdom are content with less than 1 in 2,000. Whereas Germany spends £753,000 a year on its twenty-two universities and France £740,000

a year on its sixteen, we in Great Britain and Ireland are content with less than one fifth of that amount, namely, £135,339 among seven of our thirteen. Although the Leland Stanford University of California has received no less than nine millions sterling from private munificence, and many others of the 480 American universities and colleges have likewise received huge sums—I may specify the Chicago University £2,000,000, the Johns Hopkins University £1,400,000, and the Cornell University over £1,000,000—no such general largesse is, I fear, to be expected from our British millionaires. The help must come from Government, supplemented by local contributions, or it may not come at all. Yet the matter is one of life or death for the country, for more and more every year the victory in every department, and the predominance in arts and trades, will pass to the possessors of the latest knowledge, the deepest science, and the most perfect and most economical processes. I cannot but believe that this great need will soon be remedied, and that at the cost of a few battleships real universities of teaching and research, like the new University of Birmingham, will be established in every large town, and technical and research institutions—there are twenty-five of these in Germany and forty-three in America—in most of the smaller ones. At present we are feeling keenly the competition of America, a competition that is not likely to diminish, for it possesses over 100 schools of chemistry, and has 10,000 students of engineering. This competition we can only hope to resist by imitating the foresight, generosity, and enthusiasm for science of the American Governments and of the American men of wealth. And here I would wish to quote the words of Dr. T. K. Pearsons, of Chicago, himself the donor of £800,000 to its University. "Monuments and monumental arches," he says, "once finished become dead memorials; their active function ceases. The school and college live, just as does the memorial in cold statuesque granite, but *their* functions never cease; education goes on from day to day, thinkers are moulded, the nation is served, humanity is benefited in the college."

Oh! that these words may find a practical echo in this country! Examinations are of secondary consequence. China is the most examined country in the world, and look at it. Original work done under the professor's eye and at his suggestion is far better than any examinations, and the true ideal of a real university must always be in the words of Paulsen, "*Die Erkenntnis der Dinge durch freie Forschung.*" ("True knowledge from free research.") Let us hope that we shall not have long to wait for many such universities, where the best and most practical scientific education will be open to all at low cost, as in the University of Michigan, where the fees do not exceed £7 a year, or at no cost at all, as in the State of Massachusetts, and in many of the Western States of America. There is no time to lose. The consultative Committee on Education is, however, a good beginning, which I sincerely hope will soon be followed by the appointment of a Minister for Education, a functionary to be found in nearly every civilised State except our own. It is not trades unions and skilled workmen that can ensure the continued prosperity of a nation, but the trained intelligences that direct its energy; and we may rest assured that whichever nation shall elevate highest the general standard of education will be the nation which will lead the world. Since the preceding section was written I have to record the magnificent—I hope it will prove infectious—generosity of Mr. Andrew Carnegie, with his gift of £2,000,000 to the Scottish Universities, one portion of it to be applied mainly to the teaching and endowment of research, and the rest to replace the fees hitherto paid by their students. Happy Scotland! that not only receives about one-third of the whole parliamentary grant for university education, but has found besides such a princely and far-seeing benefactor as Mr. Andrew Carnegie.

THE PUBLIC HEALTH ACT OF 1875.

Any reference to the medical standpoint of to-day were quite imperfect

without some mention of the important position now happily assumed by the sanitary medical service ; and it is a matter for legitimate pride that in this particular Great Britain was beforehand, and set, by the Public Health Act of 1875, an example that foreign countries, with the exception of the United States and of Belgium, seem in no great hurry to imitate. In every town and district there is now a skilled expert who is the guide, philosopher, and friend of every household where epidemic disease makes its appearance. It is to the labours of such as he and to the existence of isolation hospitals that the great diminution in the zymotic death-rate is due. To his labours and to the increased cleanliness and better food of the population generally is due the gratifying diminution of the phthisical death-rate within sixty years from 38 to 13 per 10,000—the presage, I cannot doubt, of the total abolition at no distant date of consumptive and tuberculous disease altogether. And this, although Naegeli has recently proved that, at any rate as far as Zurich is concerned, 96 per cent. of the deaths under 18 in that town are due to tubercle. To Dr. Nathan Raw and to the guardians of Liverpool must be given the great credit of taking the first deliberate steps for the stamping out of tuberculosis by establishing a rate-supported sanatorium near Heswall for the isolation and treatment of the consumptive poor—a good example, likely to be largely imitated soon throughout the country. Here I would wish to solicit a generous and helpful interest in the sanatorium of 60 beds to be built at Limpley Stoke, near Bath, in which, the consumptive poor of the counties of Gloucester, Somerset, and Wilts will be treated with every advantage of hill air, full dietary, and modern science. Pure air implies at least no fresh infection ; and high feeding, as so convincingly shown by Sir Hugh Beever at the last annual meeting, occasions an enhanced resistance against the tubercle bacilli.

The originator of the method of high feeding and fresh air was undoubtedly Mr. George Bodington of Sutton Coldfield, by whom it was devised and carried out with great success so long ago as 1836. Most of the credit, however, of advocating persistently and quite independently the necessity and importance of fresh air must be given to the father of the distinguished recent President of the Royal College of Surgeons of England, namely, to Dr. Henry MacCormac of Belfast, whom it was my privilege to know in my youth, and well do I remember his striking book, *Consumption and the Breath Re-breathed*. Like Semmelweis, the earliest of antiseptic obstetricians, and like Harvey, whose subversive discovery only brought about the loss of most of his practice, Dr. MacCormac excited at first opposition and ridicule only. The more reason therefore that full credit should now be given to the impassioned and eloquent advocate of fresh air, who anticipated by more than half a century some of the best knowledge and practice of to-day. Here then is a method half English and half Irish in its conception, however much it may have been pushed and popularised during recent years in Germany. And there can be no doubt as to the cures. Soon after Koch's discovery of the bacillus tuberculosis, I looked for it and found it at once in phthisical sputa, and each finding was sentence of death ; but now it is found as a simple matter of diagnosis to disappear completely, and often finally at the completion of the cure by fresh air and high diet. Of the contagiousness of phthisis I can entertain no doubt whatever, and the greatest care should be taken to destroy sputa. Remembering the liability of birds to phthisis, Dr. Tucker Wise's cautions as to cage birds should not be forgotten. Indeed the connection of the lower animals with our diseases must never be overlooked. The "harmless necessary cat" is quite often the conveyor of diphtheria, the dog always of hydatids, and the rat often of plague. "No rats, no plague," it has been said, and he who would exterminate his city's rats would do much to ensure his city's immunity against the plague. In the case of Glasgow, however, it is right to add that the rats were guiltless.

ASPIRATIONS, ETHICS, AND CONCLUSION.

And now for a few concluding words about the aims, the aspirations, and the ethics of the profession. After a long and expensive education, after knowledge acquired laboriously and at great personal risk (the clergyman's death-rate is 16 per 1,000, the lawyer's 20, and the doctor's 25) the medical man must not hold himself too cheaply. He is the heir of a long tradition, originating from the sages of India and from the temples of Greece. Our health and happiness are in his hands and the issues of life and death tremble often upon his judgment. So he must bear himself with confidence and proper pride, remembering his great traditions and the antiquity of his calling, which ranks next to that of priest. He is worthy of his hire, and that hire should be such that in the day of his popularity he may make due provision for his age and retirement and for those whom he will leave behind him. He must work hard and read and think all the days of his practising, for the best practice of to-day will not be that of even five years hence. His aspirations must be for the very best in each department of practice, for the progressive advancement of his art, and for the increased dignity and consideration of his calling.

Above all, let him be chary of any commerce with the enemies of science. *Magna est scientia et præmülebit.* None the less serious is his responsibility who, knowing its benefits, yet retards its progress, or who ignorantly would deny to others what he is insufficiently instructed to understand for himself. Beware of panaceas. There are none in truth, though the worship of Panacea was not confined to Ancient Greece, and is as reprehensible in the cold clear light of twentieth-century science as is the equivalent assumption by too many of special^{ist} omniscience.

The wise practitioner will strengthen his position, as he will certainly increase his knowledge by somewhat frequent consultations, and he will do well if, like Hunter and Jenner, he cultivates some extraneous intellectual interest to relax occasionally the stress of his anxious labours. I venture to think that nothing will do him more good than the pursuit of one or other of the arts, or of some branches of biological or physical distraction, be it zoology or botany, electricity or telescropy, for

Neque semper arcum
Tendit Apollo.

And the quotation is apposite, for was not Apollo the first physician and the father of Æsculapius, and does he not say of himself in *Ovid*,

Inventum medicina meum est, opiferaque per orbem
Dicor, et herbarum subiecta potentia nobis ?

The wise practitioner, moreover, will confine his studies within certain limits if he wishes to attain to a thorough knowledge of even some portions of his great subject. He cannot be a universal specialist, and I would commend to your consideration the admirable advice contained in one of Goethe's sonnets :

Wer grosses will, muss sich zusammenraffen ;
In der Beschränkung zeigt sich erst der Meister.

For which I would propose the following English equivalent :

Who would be great must pull himself together ;
The Master shows himself in limitation ever.

The good and worthy practitioner will never be wanting in sympathy. Too often there is physical pain to be relieved, and, thank God, it can be relieved ; though at other times the sufferings will be nervous rather than physical ; and these are the occasions when sympathy and patience are most needed, though it is not always easy to show the first, and to retain the last in the interest of some nervous sufferer on a cold wet night at 3 A.M. !

In respect of medical ethics the case is very simple. Treat and think and speak of your brother practitioners as you would wish them to treat and think and speak of you.

Medical ethics are, indeed, so completely summed up in this single sent-

ence as to make it quite unnecessary for me to read to you the section that I had written on this subject. With high aims and aspirations, with true ethical, that is to say, brotherly feeling, and with constant consideration for the public weal, we shall each and all be worthy of the well-known description in Chancer, and be "veray parfit practisours," though I hope it will not be said of us, as it was of that particular one, that

His studie wat but litel on the Bible.

No ! we will read *Ecclesiasticus*, though not *Ecclesiasticus* only, in the hope that it may be said of each of us in the words of an old poet, who was writing of a good and brave physician of his day :

He holds no parley with unmanly fears,
Where duty calls he confidently steers,
Faces a thousand dangers at her call,
And trusting in his God surmounts them all.

After Providence, ladies and gentlemen, reason is and must necessarily be our daily guide, for which cause it is consoling to recall the words of one of the greatest of French writers :

La Raison triomphe de la mort, et travailler pour elle,
C'est travailler pour l'éternité.

And if I have mentioned the word *la mort* it will but afford me the opportunity of concluding with my solemn conviction, as best expressed in the words of Longfellow :

There is no death ! what seems so is transi'tion ;
This life of mortal breath
Is but a suburb of the life elysian,
Whose portal we call death.

—*Brit. Med. Journ.*, August 3, 1901.

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THE PLAGUE IN ATHENS AS DESCRIBED BY
THUCYDIDES ; WAS IT PLAGUE AS
NOW UNDERSTOOD ?

IV. (*Concluded.*)

The Florentine epidemic of which we gave in our last number the "lively" and "artistically perfect" account by Boccaccio, was but a part of the great pestilence which, in the latter half of the 14th century, swept over the then known world and was known as the Black Death, and which has in fact prevailed since and is now known as the bubonic plague. The Justinian pestilence and likewise those alluded to by the authorities cited by Rufus were undoubtedly of the same nature. Singularly enough all these pestilences had their origin in Ethiopia whence they spread to Lybia and Egypt, and from these foci of the disease in the valley of the Upper Nile, they spread along the southern shores of the Mediteranean west and east. Exactly the same was the origin and course of the Athenian plague.

The question to determine is,—Having this common origin were they in their nature the same disease? Opinion is divided on this point among the learned. It would appear not a little strange that the great Hippocrates, who must have been an eye-witness of

the plague of Athens, and whose name is connected with it as having extinguished it by kindling fires,* has left no record of it, or, as is more probable, his records of it are now hopelessly lost. In the Books on Epidemics that have come down to us, he, indeed, speaks of "many cases of ardent fever, phrensy, apthous affections of the mouth, tumors on the genital organs," &c.; of cures of

* From the fact of Thucydides not even alluding to Hippocrates in connection with the plague, this story of the part played by the great physician in it is discredited as having no foundation in fact. Dr. Adams, however, has argued the point with great force of reasoning, and shown the untenableness of the modern view as will be seen from the following passage: "Our author's name is also connected with the great plague of Athens, the contagion of which he is reported to have extinguished there and in other places, by kindling fires. The only serious objection to the truth of this story is the want of proper contemporary evidence in support of it. It is no sufficient objection, however, that Thucydides, in his description of the circumstances attending the outbreak of the pestilence in Attica, makes no mention of any services having been rendered to the community by Hippocrates; while, on the contrary, he states decidedly that the skill of the physicians could do nothing to mitigate the severity of this malady. It is highly probable, that, if Hippocrates was actually called upon to administer professional assistance in this way, it must have been during one of the subsequent attacks or exacerbations of the disease which occurred some years afterwards. We know that this plague did not expend its fury in Greece during one season, and then was no more heard of; but on the contrary, we learn that it continued to lurk about in Athens and elsewhere, and sometimes broke out anew with all its original severity. Thucydides briefly mentions a second attack of the plague at Athens about two years after the first, attended with a frightful degree of mortality; nor is it at all improbable that this was not the last visitation of the malady. Though the name of Hippocrates, then, may not have been heard of at its first invasion, it is not at all unlikely that, after he had risen to the head of his profession in Greece, as we know that he subsequently did, he should have been publicly consulted regarding the treatment of the most formidable disease which was prevailing at the time. What adds an appearance of truth to the tale is, that several of the genuine works of Hippocrates, which were probably published in his lifetime, relate to the causes and treatment of epidemic and endemic diseases. That the magistrates of Athens, then, should have applied to him as the most eminent authority on the subject, to assist them in their sanitary regulations during the prevalence of the great pestilence, is so far from being improbable, that I think it would have been very extraordinary if they had omitted to consult him, seeing that he was undoubtedly looked up to as the *facile princeps* among the physicians of the day. That his services in this way have been exaggerated by the blind admiration of his worshippers, both at that time and in after ages, may be readily admitted; but this circumstance ought not to make us reject the whole story as being fabulous. I repeat, then, that although this part of the history of Hippocrates be not vouched by any contemporary evidence it is by no means devoid of probability, while the objections which have been started to it by modern authorities have not so much weight as is generally supposed."

Contemporary evidence is wanting not because there was none, but because it has been lost. Galen, who must have been familiar with the Bubonic plague as it occurred in his time, alludes to the professional services of Hippocrates during the plague in Athens. And moreover he points out the difference between the description given by Thucydides and that given by Hippocrates. The former, he says, describes the symptoms as would appear most striking to a non-professional man, the latter those which a professional man would think it necessary and proper to record. All this Galen would not and could not have said had he no authority for his assertion, which was in all probability contemporary evidence, and the actual description of the plague given by Hippocrates, both now lost.

erysipelas in which forearms and arms dropped off and the bones of the lower extremities, the whole femur and bones of the leg and foot, were laid bare,—of which cases the most formidable were those *which took place about the pubes and genital organs*; and of other fevers in which besides the aphthous ulcerations of the mouth there *were many defluxions about the genital parts, and ulcerations, boils (phymata), externally and internally, about the groins*. It is true that though these are treated of in the Books on Epidemics, that have come down to us, like many other diseases treated of in the same place, they are not spoken of as prevailing epidemically. And if they had really belonged to the plague described by Thucydides, it is not likely that Hippocrates would have omitted all mention of the fact. This, however, does not show that Hippocrates had no knowledge of the plague that occurred in his own time or that he had not written about it. It only lends probability to the view advanced by Dr. Adams that he had no experience of the first two invasions of the disease which are the only ones described by Thucydides, but that he must have had of the subsequent invasions. Might it not be that the cases of fevers with buboes to which he has made reference were isolated cases of the disease which were the precursors of it when it broke out as a pestilence?

According to M. Littré the attempts of Krauss and Hæser to assimilate the pathological phenomena specified by Thucydides to the diseases above mentioned that are found narrated in the Books of Epidemics by Hippocrates are not successful, the resemblance between the two sets of phenomena being, as he says, neither close nor precise. M. Littré does not think that the disease described by Thucydides was of the nature of the glandular or bubonic plague. In his opinion it was an eruptive fever, but different from small-pox, and extinct in the present day.

Dr. Francis Adams, the English translator of Paulus Æginata and of Hippocrates, believes that the Plague of Athens was a form of the Bubo Plague. In his commentary on the article Plague of the former he says: "After a pretty extensive investigation into the histories of pestilential epidemics, we have come to the conclusion that the plague has almost invariably assumed one or other of the following phases: 1st. That of cholera and dysentery. The plague described by Thucydides, and that of

Ingrassias, and many other pestilential epidemics described in ancient and modern times, including the Asiatic cholera of the present age, belong to this class. 2nd. That of profuse, and as they have been termed, syncoptic sweats. The celebrated epidemic of the fifteenth century, now so admirably illustrated by M. Hecker, is the best marked instance we possess of this form of the disease. M. Hecker, indeed, supposes that the cardiac disease of the ancients was of a similar nature to the sweating sickness. But it strikes us (although we must admit that we have not had time to consider this point maturely,) that the syncoptic fever or cardiac disease of the ancients, was not of a pestilential nature. 3rd. The other form is the Glandular plague, which many late authorities would consider as the only form of the disease; but as we think erroneously, since the other types are often mixed up with this in the same epidemic. Thus in the plague of Aleppo, during the years 1760, 1761, and 1762, although the ordinary form of the disease was the glandular, a considerable portion of the cases assumed the first form we have noticed. And in the plague of Athens, although it commonly put on the appearance of the first form, it would appear probable from the obscure allusion to cutaneous eruptions in the description of Thucydides, that a certain proportion of the cases was of the second (? third) type. The three forms then would appear to us to be as closely allied to one another as diphtherite, ulcerous sore throat, and scarlatina are; that is to say, they are all varieties of one species of disease."

In his Translation of the Works of Hippocrates published five years later, Dr. Adams is more pronounced in his opinion of the nature of the Athenian plague as the following passage quoted in full shows: "To my mind, then, there can be no doubt that the pestilence which prevailed during the Peloponnesian war partook of the nature of the glandular plague. What has tended to create doubt on this subject, in the minds of many learned men, is the omission of any distinct mention of buboes in the graphic description of it given by Thucydides. But it should always be taken into account that Thucydides was not a professional man, and therefore there is a strong presumption that his acquaintance with the disease, even although, as he states, he himself had experienced an attack of it, must have been altogether of a

general nature. Indeed Galen, both in the treatise from which I have quoted above and in many other parts of his work, does not hesitate to declare, that the historian describes the disease as a common, that is to say, a non-professional man, whereas Hippocrates gives its characters as a physician. It is also to be borne in mind, that the description of it given by Thucydides applies to it only at its outbreak in the city of Athens, and it is a well-known characteristic of pestilential epidemics that they change very much during their progress. This character of them was well illustrated in the Plague of Aleppo, so admirably described by Dr. Russel; for although the glandular form of the disease prevailed in a large number of cases, a considerable proportion of them were unaffected with buboes. Indeed it appears to me to be too much the practice for the profession, as well as the public, to imagine to themselves a certain type or ideal of every disease, and when they do not recognise the exact characters which they fancy it should present, they immediately set down such cases as constituting an entirely different disease. This is an error that is constantly committed, and one which I believe to be at the bottom of the discordant opinions which prevail among professional men, on the subject of the glandular plague. It would be well for the physician to bear in mind how many varieties of symptoms the fever designated as Typhus puts on,—some with the rash reckoned peculiar to this fever, and some without it,—some with petechie, and miliary eruptions, and others without them; and many other complications of symptoms, which are sometimes present and sometimes not."

Dr. August Hirsch notices the Athenian plague only incidentally in his *Geographical and Historical Pathology*. According to him it was of a composite character, that is, more than one kind of disease prevailed at the time it occurred as is the case in the times of other epidemics. "It is questionable," says he, "whether the pestilence of the 3rd century described by Cyprian and others, was plague; it is clear that they are treating of a mixture of various kinds of disease, as in the case of the epidemic at Athens during the Peloponnesian war in the description of Thucydides. It is possible that plague may have been one of them, but it is not proved."

Is it possible with our present definite knowledge of the bubo-

nic plague to arrive at a correct solution of the problem we have set to ourselves ?

From our experience of the disease as it has been recently prevailing in China and our own country, we find that it presents three most distinct and pronounced forms, the ordinary bubonic, the gastro-enteric, and the pneumonic. Of these the first is the mildest, the second of medium severity, and the third the gravest and the most severe. To these a fourth may be added which proves so rapidly fatal, often within a few hours of infection, and never exceeding twenty-four, to which the name of fulminant or foudroyant has been given, that no distinct lesions are observable in any separate part of the organism. Indeed the whole organism seems to suffer equally from the virulence of the morbid poison, and succumbs before there is time for the development of visible and tangible lesions anywhere. It is also to be noted that the infectiousness is in proportion to its severity, the pneumonic variety being the most and the gastro-enteric the least infectious.

It is a fact also which we have learnt from our experience of the now prevailing epidemics, that all these forms or varieties of the disease may and do co-exist in the same epidemic in more or less relative proportion. And we find the counterpart of this in the historical pestilences that have desolated the world in by-gone ages. Hecker, in his account of the Black Death, after describing its occurrence in the various countries of Europe and the symptoms which had been observed in each, says: "The descriptions which have been communicated contain, with a few unimportant exceptions all the symptoms of the oriental plague which have been observed in modern times. There can be no doubt on this point. The facts are placed clearly before our eyes. We must however, bear in mind that this violent disease does not always appear in the same form, and that while the essence of the poison which it produces, and which is separated so abundantly from the body of the patient, remains unchanged, it is proteiform in its varieties, from the almost imperceptible vesicle, unaccompanied by fever, which exists for some time before it extends its poison inwardly, and then excites fever and buboes, to the fatal form in which carbuncular inflammations fall upon the most important viscera."

From what we have said above it will be seen that Dr. Adams was right in pointing out that there are various forms or varieties of the plague, though his inclusion of cholera and the sweating sickness in it was too far-fetched. He was also perfectly right when he said that it is a characteristic of pestilential epidemics that they vary in their symptoms during their course. We may add that the difference between one epidemic and another of the same essential nature consists in the predominance of one or other of its forms. And in this way epidemics of the same disease prevailing at the same time in different countries may and often do differ from each other. A close and minute examination of the symptoms will enable us to determine whether the various forms of disease prevailing during an epidemic are mere varieties of the same disease or different species of other diseases. In bacteriology we have now almost a certain instrument of diagnosis where the disease is associated with a specific microbe, we do not say specific in the sense of pathogenetic or causative, but in the sense of possessing a definite form which can be recognized. It is bacteriology which has enabled to recognize the same disease in the different forms mentioned above of the bubonic plague; for whatever the form the same microbe is found in the blood, tissues, and secretions of the patient.

The symptoms of the Athenian disease as described by Thucydides assimilate it more to the plague as we now know it than to any other disease. It could not have been small-pox, because no epidemic of this disease could be traced to such ancient time as that of the Athenian plague, and we find no mention of it even as a sporadic disease in Hippocrates. Small-pox is such a definite and well-recognized disease that if it had existed before and in the time of Hippocrates, he himself, his predecessors and immediate followers could not have failed to enter it in their nosology. The only other disease with which the plague of Thucydides might possibly be thought to resemble, is Typhus. But the recognition of this as a distinct disease cannot be traced beyond the eleventh century of the Christian era, and its scientific study was begun by Italian physicians only so late as the commencement of the sixteenth century. Besides, though in their most malignant forms, these diseases—plague, small-pox, and typhus—are scarcely distinguishable, yet they have differentiating characters

sufficiently marked which could not be mistaken even in the most virulent epidemics, for it is not every case that is of the most deadly type.

We would draw attention to one symptom mentioned by Thucydides which had its analogue in the Florentine plague described by Boccaccio. Thucydides says that "the sufferers could not bear to have on them the thinnest garment; they insisted on being naked." Boccaccio speaks of an unheard-of custom which prevailed—"No lady, however young and handsome, would scruple to be attended by a man-servant whether young or old it mattered not, and to expose herself naked to him, the necessity of the disease requiring it." This necessity was no doubt the inability to bear the thinnest garment on, as Thucydides has more clearly put it. The symptom was a genuine one in the two epidemics, and so far affords presumptive evidence that they were of the same nature.

In addition to the greater similarity of the symptoms of the Athenian disease to those of the true bubotic plague than to those of any other disease, we have the fact that a bubonic plague followed it a century and a half later, which again was followed by another similar one after about the same interval, and this again by a third (the Justinian) after a longer interval, and so on; and we have the further fact that they all had their origin in Ethiopia. From all these facts we are led to conclude that the Athenian plague was no other than the bubonic disease as we now understand it, and that the predominant forms of that plague were the pneumonic and the gastro-enteric, which account for its virulent infectiousness.

DR. CLARKE'S *DICTIONARY OF PRACTICAL MATERIA MEDICA.*

Just as we were going to press we received the first volume of this work. When this volume left England the second volume was not out but about to be. The first volume was issued in July 1900, and the second was naturally eagerly looked for, especially by those who had received the first, not so much to have the equivalent of the money they had advanced, as to possess the completed work, the excellence of which was so fully

assured by the manner of execution of the already published volume. As Dr. Arnulphy has very well said, "the first volume makes one thirst after the second."

As by this time the second volume is out, we reserve our review of the whole work, till we have the opportunity of seeing that volume. Meantime we feel it our duty to say that the opinions passed upon the first volume, which will be seen from our advertisement pages, are more than justified by what we have seen of it ourselves. If the second volume is as good as the first then the author has succeeded in producing a *Materia Medica* which will for many years remain the most complete of our school. Of course with every year's, almost with every day's, experience and additions to the *materia medica* the work will have to be revised and improved, and we hope the present edition will be soon exhausted as it deserves to be, to make room for further enlargement and improvement. It is well that the author has not waited to aim at perfection. As he has well said in the Preface: "If I had chosen to wait a few more years before publishing, I have no doubt I could have improved my work; but if I had waited till doomsday I could not have made it perfect,"—simply because perfection is not attainable, and can only be approached gradually by keeping our eyes open to the progress that is going on around us.

The work is more than a dictionary. It is an encyclopædia. The first volume contains 951 pages, and treats of 485 remedial agents, each as fully as published information regarding it has permitted the author to do so. Every available source of information has been utilized. The second volume, we are told, will contain about 1,560 pages, and therefore very nearly will be of double the size of the first. So that the work now completed gives our school a *Materia Medica* in which all known remedies are presented on a uniform, exhaustive plan, giving, besides an introductory description, digest and analysis of each remedy, a working schema containing the cream of its pathogenesis, in case it has been proved. We can confidently pronounce it to be a safe and thoroughly reliable work for the student and the practitioner. The work has been so well done that we discontinue giving our clinical and other notes on the *Materia Medica*, as our readers will find them all in Dr. Clarke's Volumes.

CLINICAL AND OTHER NOTES ON THE ARTICLES OF THE MATERIA MEDICA.

2. *ÆTHUSA CYNAPIUM.*

COMPARE WITH—*Cicut.*, *Conium*, and the other remedies belonging to that family (*Jahr*).

Æthusa is comparable with *Cicuta virosa* and *Oenanthe crocata* in its toxic effects; with *Cistus*, *Bovista*, *Clematis*, and *Sulphur* in its finer actions and curative powers (*Hughes*).

ANTIDOTES: Vegetable acids. It antidotes *Opium*.

The symptoms of *Æthusa* are, like those of *bovista* and *asteris*, aggravated by coffee, wine, drunkenness, cold water, and the warmth of the bed; they are diminished by a walk in the open air, and by conversation (*Teste*).

The fact that *fool's parsley* (*æthusa cynapium*), besides other affections, as vomiting, diarrhœa, colicky pains, cholera, and others for the truth of which I cannot vouch (general swelling, &c.), produces so specifically imbecility, also imbecility alternately with madness, should be of use to the careful physician in this disease so difficult of cure. I had a good extract of it prepared, by myself, and once, when I found myself, from much mental work of various kinds coming upon me in rapid succession, distracted and incapable reading any more, I took a grain of it. The effect was an uncommon disposition for mental labor, which lasted for several hours, until bed time. The next day, however, I was less disposed for mental exertion (*Hahnemann*).

According to Petroz, *æthusa cynapium* has been useful in chronic inflammation of the margin at the eyelids, pustules on the cornea, incipient amaurosis, swelling of the glands, tettery eruptions on the tip of the nose, swelling of the cervical and axillary glands, eruptions around joints, dryness of the skin, nodes of the skin, tetters which itch in the warmth, or bleed readily. The pathological sphere of *æthusa* is completed by the following affections, which have to be added to those above named: nervous derangements characterised by a loquacious gaiety, optical illusions and hallucinations, disposition of the head to fall backwards, momentary staring of the eyes, embarrassed speech, vertigo in the middle of the day, &c., sweat on making the least exertion, dry cough and dyspnoea in the afternoon (*Teste*).

Notwithstanding the attempts of Harley and others to discredit *Æthusa* as a virulent poison, "violence," as has been rightly remarked by Dr. Clarke in his excellent *Dictionary of Practical Materia Medica*, "is one of the notes of its action—violent vomiting, violent convulsions, violent pains, violent delirium. On the other hand," he observes, "there is prostration and somnolence. 'Fool's parsley' has not received its name for nothing—it is indeed a medicine for fools. There is great weakness of mind or body. One very characteristic symptom is: *Inability to think or fix the attention*. Guided by this symptom I once gave it to an undergraduate preparing for an examination with complete success. He had been compelled to give up his studies, but was able to resume them and passed a brilliant examination. To a little waif in an orphan home who suffered from severe headaches and inability to fix his attention on his lessons I sent single doses of *Æthusa* at rare intervals, with very great relief. The little boy asked for the medicine himself subsequently on a return of the old symptoms."

One of the narcotico-acrids of toxicology, its irritant influence is manifested not so much by inflammation as by pain, which is generally very severe. The nervous symptoms are convulsive, somewhat epileptiform in character; in one case (in a child) it is noted that the thumbs were bent inwards, and the eyes turned downwards. The lower jaw is tetanically fixed. In less severe cases there is much complaint of headache, the face is usually red and in one instance the eyes were painfully inflamed and the cheeks cedematous (*Hughes*).

Though not justified by its pathogenesis, it has been eminently useful in *intolerance of milk*, especially in children, which is thrown up as pure milk, or in curdled masses, large enough to choke the patient. Vomiting, which comes on with a rush, is followed by exhaustion and deep sleep, from which child awakens hungry, eats and vomits again. *Hungry after vomiting* is a keynote of the drug. It is suited to severe cases that have been prostrated by a long course of bad diet, by summer complaint, or by the irritation of teething (*Farrington*).

We owe it to Guernsey for its use in cholera infantum when the stools are bright yellow or greenish watery slimy, and when there are: "great anguish and crying; disposition to jump out of bed or escape from the room; great anxiety expressed by the face, often accompanied by the lineæ nasalis; regurgitation of food an hour after it has been taken; swelling of external glands with lancinating pains; startings preventing sleep; heat without thirst."

PATHOLOGICAL ANATOMY (*Jahr*).

IN MEN.—The body is but slightly decayed after the lapse of three days.

A multitude of cadaverous spots.

Immediately after death the body becomes stiff and very cold.

The upper limbs are moveable, the lower stiff.

The hair is very firmly rooted in the scalp.

Bloated countenance, the cornea is dim and deeply sunken, the pupils are very much dilated.

The mouth is firmly closed. Black tongue.

Contraction of the cardiac orifice of the stomach; the stomach contains a brownish; serous fluid.

Apparent, but not fully developed inflammation of the mouth, fauces, œsophagus and stomach.

The whole of the intestinal canal is distended with air.

Light color of the bile in the duodenum, the anterior edge of the liver, a portion of the colon near the liver and a portion of the omentum exhibit a similar color.

The liver is hard and yellow; the gall-bladder is turgid with a fluid, yellowish-brown bile.

The spleen has a livid color.

The kidneys are congested with blood.

The brain and the sinuses are congested with blood.

The venous blood is fluid throughout. "

IN ANIMALS (dogs).—The lungs do not crepitate as much as in their natural condition.

The left ventricle contains a fluid, blackish blood.

3. AGARICUS MUSCARIUS.

COMPARE WITH—Acon., Bell., Coff., Graph., Nux v., Op., Phosp., Puls., Staph.

ANTIDOTES.—Camph., Coff., Puls., Vinum.

CLINICAL OBSERVATIONS.

Apelt has found it useful in pains of the upper jaw-bone and of the teeth, as well as in pains of the bones of the lower limbs (seemingly in the marrow) and finally in itching eruptions as large as millet seeds, set closely together; also in lassitude following coition. Whistling cured with it convulsions and trembling and J. C. Bernhard cured with it several varieties of epilepsy. Dr. Woost saw the effects of Agaricus in large doses extend for seven or eight weeks (*Hahnemann*.)

This remedy has been successfully employed in convulsions and tremor, and in some kinds of epilepsy. It is proposed for paralysis of the upper and lower extremities arising from incipient softening of the central portion of the spinal marrow (*Jahr*).

Acne Rosacea. Blepharospasm. Brain, softening of. Bunion. Chilblains. Chorea. Coldness. Cough. Cramp. Delirium tremens. Dysmenorrhœa. Enteric fever. Epilepsy (with great exertion of strength). Gangrene. General paralysis. Hyperpyrexia. Itching. Jaundice. Lachrymal fistula. Lichen. Lumbago. Men-

ingitis. Myopia. Neuralgia. Numbness. Nystagmus. Phthisis. Rheumatism. *Sacrum, pains in.* Sebaceous tumours. Sexual excess, effects of. *Spinal irritation. Spleen, affections of. Starting.* Stitch in side. Tic convulsif. Toothache. Tremors. Typhoid fever. Typhus. (Clarke).

PATHOLOGICAL ANATOMY (Jahr).

Discharge of frothy, blackish-green substances.

Distended abdomen.

The stomach and bowels are distended with fetid air, their inner surface exhibits traces of inflammation and gangrenous spots.

A sort of inflammatory congestion in the neighbourhood of the pyloric orifice in the interior of the stomach.

Large gangrenous spots in the stomach and intestinal canal, where decomposition seems to have considerably advanced.

The mucous membrane of the ileum is destroyed in various places.

The stomach contains a blackish fluid.

The liver is excessively distended.

The gall-bladder is filled with a thick, dark coloured bile.

CONCORDANCES (from Boenninghausen).

Moral and intellectual faculties.—Ant-crud. BELL. bry. cann. hyosc. lach. n-vom. OP. PHOSPH. STRAM. veratr.

Seat of the diseases.—Alum. aur. BELL. bry. CALC. canth. carb-veg. caust. CHIN. con. hep. ignat. kali. mang. MERC. mezer. natr-mur. PHOSPH. PH-AC. PULS. RHUS. sabin. sassap. SEP. sil. spig. spong. staph. stram. sulph. zinc.

Morbid states and sensations.—Acon. ars. bar. BELL. bry. CALC. canth. caust. cham. chin. COCC. con. cupr. hyosc. ignat. kali. lyc. merc. natr-mur. N-VOM. phosph. ph-ac. puls. sep. sil. stann. sulph. zinc.

Bones.—Amm-mur. bell. caust. COCC. hep. merc. phosph. puls. ruta.

Skin.—Ant-crud. bry. CALC. chin. lach. led. lyc. magn. merc. natr-mur. nitr-ac. petr. phosph. ph-ac. puls. RHUS. selen. sep. sil. sulph. veratr.

Sleep and dreams.—Acon. anac. ant-crud. cycl. lach. n-vom. phosph. sulph.

Pyrosis.—Bell. bry. CHIN. graph. hep. lach. merc. NATR-MUR. rhus. samb. selen. sep. STRAM. sulph.

Time.—Chel. nitr. n-vom.

Exacerbations.—Ars. bar. bov. calc. cann. caps. carb-veg. chel. chin. con. kali. LACH. lyc. natr. n-mosch. n-vom. PULS. ran-balb. rhodod. RHUS. ruta. SELEN. sep. SIL. spig. stram. VALER. zinc.

Concordances in general.—Ant-crud. ars. BELL. bry. CALC. carb-veg. caust. CHIN. COCC. con. hep. ignat. kali. LACH. lyc. MERC. natr-mur. n-vom. op. PHOSPH. ph-ac. PULS. RHUS. selen. SEP. SIL. stram. sulph. valer. zinc.

PUNSAVANA ; OR THE CAUSING THE BIRTH OF A MALE CHILD.

BY DR. SURENDRA NATH GOSWAMI, B.A., L.M.S.,

(Continued from Vol. xx, No. 8, p. 324.)

In the opinion of the Aryan thinkers, the selection of this form of flesh-food, that is very likely to tell much on the feeling of the mother, is not to be given unless her constitutional condition is found completely broken down. When we find sexual intercourse invariably unproductive, or when we find it attended with an excessive preponderance of female births, we are necessarily drawn to the conclusion, that there must be at the root of this evil something wrong with the seed-producing principle in the female system, that is preventing the healthy generation of the pro-creative elements. (67-70)

67. ओजस तेजो धातुर्ना शुक्लानानां परं स्यूतम् ।

हृदयस्थमपि व्यापि देहस्थितिनिवन्धनम् ॥

यस्य प्रवृद्धौ देहस्य तृष्टिपुष्टिबलीदयः ।

यज्ञाग्ने नियतो नाशो यस्मिन् स्तिष्ठति जीवनम् ॥

निष्पाद्यन्ते यतो भावा विविधा देहसंश्रयाः ।

अतः साहसप्रतिभाधैर्यलावण्यसुकुमारताः ॥ वाग्भटः ॥

68. तदभावाच्च शीर्ष्यन्ते शरीराणि शरीरिणाम् ॥ सुश्रुतः ॥

69. संवर्तमानं हृदयं समाविशति यत् पुरा ।

यस्य नाशो नाशोऽस्ति धारि यद् हृदयान्वितम् ॥

यच्छरीरबलं देहः प्राणा यत्र प्रतिष्ठिताः ॥ चरकः ॥

67. Oja is regarded as the finest vital principle that exists in all the tissues of the body of which the last is the reproductive element. Though it resides chiefly in the heart it spreads over the whole body in order to maintain its integrity ; upon the increment of this substance pleasure, nutrition and strength depend. The loss of it invariably brings on destruction, for life depends upon it. The various functions of the body, as well as energy and intelligence, patience elegance and softness all emanate from it.

68. Failure of its production or its loss causes emaciation of the body.

69. The oja enters the heart and is first deposited there. The failure of its production destroys life. It is the essence of life and resides in the heart. It is the strength of the body. The integrity of the body, and life itself depend upon it.

This morbid condition of the female system cannot be removed unless the nutritive basis, out of which the ovum is generated, is improved with proper food. A kind of mixed diet is supposed to be better adapted for this purpose than the form of pure flesh-food. (71)

Of all female disorders,—constitutional, leucorrhœal, displacement—defective metabolism offers the strongest resistance to fertility. When oxidation in the tissues धात्वग्नि is interfered with, the excretions from our body shew in themselves the presence of an abnormal quantity of unused up carbo-hydrates, the presence of sugar, or albumen, or phosphates, in the urine, is regarded as an important test of defective metabolism; what should have been consumed in the economy of the body is unnecessarily eliminated from the system, making a fresh demand of food, for the replenishment of the body, almost unavoidable. But owing to the presence of the same deficiencies in assimilation, it is again rejected. This sort of constant want and waste, cannot go on for an indefinite period, without bringing in its train disorders like glycosuria or diabetes mellitus. When the subject is a female she is either rendered completely incapable of producing an ovum or if capable, the ovum does not turn out to be the same, out of which the male sex can be evolved. In case of male subjects, the power of

70. यत् सारमादौ गर्भस्य योऽसौ गर्भरसाद्वसः । चरकः

71. ————— तञ्जौजः परिरक्षता

परिहृय्या विशेषेण मानसादुःखहेतवः ॥

इयं यत् स्याद् यदौजसं क्षोतसं यत् प्रसादनम् ॥

तत् तत् सिध्यं प्रयत्नेन ॥ चरकः

जीवनीयौषधचौरसाद्यास्तत्र भेषजम् ।

ओजोविहङ्गौ देहस्य तृष्ट्युष्टि वलोदयः ॥ वाग्भटः ॥

70. It is the essential factor of reproduction ; it is the nutritive basis of the procreative elements.

71. Those who are willing to preserve oja must avoid causes of mental distress. Such substances as are agreeable, oja-generating, and eliminatory of waste products, and medicines which are invigorating, and food such as milk, flesh, &c., are to be used. The increase of oja brings on pleasures of life, nutrition and strength.

fertilisation disappears altogether. In the opinion of Professor Schenk nothing is so much responsible for these untoward events, as the discharge of sugar with the urine. Indian medical science asserts the same thing when it holds, that the substance upon which the processes of ovulation and generation and still more, the evolution of sex, are completely dependent, is a vital principle, elaborated from the absorbed food material, (रस) somewhere in the laboratory of the heart or liver, or intestines. (72).

This vital principle is held in deposit in almost all the tissues of the body, but particularly, in the heart, which requires it the most, in order to maintain its own integrity in relation to the constant and heavy work it has to perform. (73-75)

72. ततः सारभूतस्य द्वौ भागौ भवतः स्थूलः सूक्ष्मश्च । तत्र स्थूलोभागः

शरीरारम्भकं शुक्रं याति; सूक्ष्मः स्नेहभाग ओजः ।

73. भ्रमरैः फलपुष्पेभ्यो यथा संश्रियते मधु ।

तद्वद् ओजःशरीरेभ्यो धातुः संश्रियते मृणां ॥ वैद्यकः

74. सर्वधातूनां स्नेहभोजः क्षीरे हतमिव ॥

75. अष्टविन्दु प्रमाणं तदीषद्रक्तं सपीतकम् ।

अग्निषोमात्मकत्वेन द्विषं वर्णितन्तु तत् ॥ चरकः

72. Next, the purified rasa divides itself into two portions, one finer than the other. The grosser portion adds to the reproductive element; the finer portion is oja, the fatty principle.

73. As honey is collected by the bee from different flowers and fruits so oja is collected from different tissues of the body.

74. It is the fatty principle of all the tissues of the body, as ghee is of the milk.

75. Its quantity in the heart is said to be 8 drops, it is slightly blood-colored and yellowish and is both heating and cooling.

(To be continued.)

EDITOR'S NOTES.

Salivary Calculus.

Salomon (*Prog. Méd.*, August 17th, 1901) records a case of calculus in Steno's duct in a woman, 64 years of age. It had been growing for thirty years. It at length gave rise to an abscess in the cheek, leading to its recognition and removal. It weighed over 7 grams, and was composed chiefly of triple phosphate of lime along with some carbonate of lime. Part of it had been embedded in the left cheek and part projected into the buccal cavity, resting on the second upper molar tooth. Such calculi are much less common in women than in men.—*Brit. Med. Journ.*, Sept. 7, 1901.

Direct Infection with Phthisis.

Direct infection of a nurse from a consumptive patient is reported by Stewart (*Amr. Journ. of the Med. Sci.*, September, 1901) in the description of a case of acute splenic miliary tuberculosis. The patient was a young woman who had had no evidence of tuberculous infection prior to her attendance upon a phthisical patient. The patient was in poor circumstances, and had apartments which were badly heated and damp, and the nurse's nourishment while attending him was of very poor quality. In the middle of her second week of attendance upon the case she became acutely ill and died sixty-eight days later, the necropsy revealing a universal tuberculous infection.—*Brit. Med. Journ.*, September 28, 1901.

Depth of the Atmosphere Surrounding the Earth.

The Belgian Royal Meteorological Observatory has published the estimates made by various mathematicians and physicists regarding the depth of the atmosphere surrounding the earth. The calculations of the various savants upon this subject are widely divergent. Biot estimated that the depth was only about 40 miles; Bravais, 70 miles; Mann, 81 miles; Callandrau, 100 miles; Schiaparelli, 125 miles; Marie Davy, 187; while Ritter stated that it reached to a height of 216 miles. In Great Britain, during the early part of the last century, the depth of the atmosphere was generally accepted as being 47 miles, but the fact that meteors became incandescent at a much greater altitude incontrovertibly proved that this calculation was fallacious. Sir Robert Ball states that meteors have been observed at a celsitude of more than 200 miles, and since they only become incandescent when they come into contact with the air, the calculation of Ritter appears to be the most correct.—*Scientific American*, September 7, 1901.

Auto-Cæsarean Section.

Loeffler (*Wien. Med. Woch.*, No. 10, 1901) relates as authentic the following case: A Bosnian woman, who had borne 15 children, was sinking from phthisis, and was also subject to osteomalacia in an advanced degree. Desirous of saving her child and herself without medical assistance, she cut through her abdomen into the uterus with a notched and rusty knife. She saw the fœtus escape and then fainted; on reviving she woke up her daughter, a girl aged 13, who sewed up the abdominal wound with a continuous suture of waxed hempen twine, dressing it with moss. The wound was 5½ inches long, and healed by first intention. Mother and child recovered, and the former seemed better after the puerperium, as far as the osteomalacia was concerned.—*Brit. Med. Journ.*, September 28, 1901.

The Attempt to Swim the Channel.

The attempt made on August 24th by Mr. Holbein to swim across the Channel, though ending in failure, was a remarkable example of endurance. He started from Cape Grisnez at 3.50 A.M., and continued to swim for thirteen hours, when he was about six miles from Dover pier; the swimmer then appeared to the captain of the tug, which accompanied him, to be in danger, and was hoisted out of the water into the tug, which immediately proceeded to Dover. On Mr. Holbein's arrival at Dover pier, he was at once seen by Dr. Charles E. Murphy, who examined him twenty-five minutes after he had been removed from the water. Dr. Murphy informs us that the temperature under the tongue was 98.8° F., under the arm 98° F.; the pulse was strong at 78, cardiac dulness was normal, and the lungs were normal, but the stomach was dilated owing to the large quantities of salt water which he had swallowed. The swimmer was perfectly conscious and rational, and complained only of his eyes, some conjunctivitis having been produced from the continued contact of salt water. Dr. Murphy says that he was astonished at the absence of signs of exhaustion of any kind.—*Brit. Med. Journ.*, Sept. 14, 1901.

Lactation in Damaged and Partially Amputated Breasts.

Bouchacourt (*L'Obstétrique*, May 15th, 1901) writes of a female, aged 18, who had been severely burnt on the chest when 3 years old. Nothing remained of the right breast except white fibrous bands, amidst which it was hard to find a trace of nipple. During pregnancy the scars became deeply pigmented and assumed a keloid type, whilst the subjacent gland, which seemed before as though entirely destroyed, hypertrophied and became the seat of the usual sensations.

After delivery the milk was felt to rise in the right breast, but the pressure of the cicatricial tissue soon checked and stopped secretion. The patient was able to suckle her child with the opposite breast. Budin, in discussing this case, reported another where both breasts had been removed in girlhood for hypertrophy. After every labour the thorax, quite flat at other periods, became convex, as milk formed in the portions of mammary tissue not removed. Abscess never occurred, and Bouchacourt's case showed no sign of suppuration. Thus retention of milk is not in itself alone a cause of suppuration.—*Brit. Med. Journ.*, Sept. 14, 1901.

Abscess of the Liver.

Kobler (*Virchow's Archiv*, Bd. clxiii, Hft. 1, 1901) discusses the causation of abscess of the liver, and especially its relation to dysentery. In preantiseptic days liver abscesses were common and were due to pyæmic processes. Since then statistics of the disease have been scanty, and affections of the area drained by the portal system supply the greater number of cases, especially inflammatory affections of the cæcum. Kobler analyses 79 cases from the Institute of Pathology and Anatomy at Vienna. Thirty-one of these occurred in connection with occlusion of the bile ducts (23 gall stones, 7 carcinoma, 1 ascaris lumbricoides). Seventeen were secondary to disease in the portal area (6 disease of the female genital organs, 4 dysentery, 3 typhlitis, 1 pancreatic abscess, 1 suppurating hæmorrhoids). Thirdly, pyæmia accounted for 13 cases, and fourthly, in 18 either the cause was not discovered or arose from echinococcus (8) or contiguous suppuration (4). In Bosnia the disease appears to be unusually common. In the Sarajevo Hospital, 10 cases were examined *post mortem* in six years. In 8 of these there was dysentery. Two other cases operated on in the hospital were secondary to dysentery, and Schweiger has published records of 26 other cases in Bosnia, in 20 of which dysentery was present. In this country dysentery is endemic, and accounts for the large number of cases of liver abscess. A comparison of the two sets of statistics shows that any conclusion as to causation drawn from the records of a single locality are likely to be fallacious.—*Brit. Med. Journ.*, Sept. 7, 1901.

The Medico-legal Study of Hair.

London from an extensive histological study of hair, both human and animal, has found that it is easy enough to distinguish by the microscope both human and animal hair from all other similar

structures. After a certain amount of experience it is not difficult to differentiate a human hair from that of an animal, and even to decide to what species of animal the specimen belongs. If all the peculiarities of hairs are studied it is possible to determine the region from which a human hair has been derived. In a table the peculiarities of the hair from different situations are set out; many given are only to be appreciated by an expert. To determine whether hairs have fallen out or been torn out it is necessary to be possessed of several samples; the determination is based upon the character of the root. If the latter be irregular, with an undulating surface and excrescences of different form and thickness, it belongs in all probability to a hair that has been plucked out. If the root be small with a rounded extremity and smooth surface, the hair has probably fallen out. To determine whether a hair is grey or blonde macroscopic examination is insufficient; London has obtained satisfactory results only by the use of a polarisation apparatus. Experiments on the artificial changing of the colour of hair showed that chlorine solution is capable of completely decolorising black hair; acetic acid and caustic soda produce the same colour change but destroy the hair to a certain degree. London confirms the statement that arsenic can be demonstrated in the hair of the subjects of acute poisoning by the drug.—*Brit. Med. Journ.*, Sept. 14, 1901.

Foreign Body Obstructing Parturition.

Czarnecki (*Deut. med. Woch.* June 6th, 1901) records a very rare form of obstruction to the act of childbirth. He was called to a woman in labour, and was told by the husband that a "tin box" would have to be removed before the baby could be born. Although he took this to be a joke, he took forceps with him. On arrival he found a primipara, aged 27, of good muscular development, in labour. The os was scarcely the size of a two-shilling piece, and through it he found he could not diagnose the presentation, because of a foreign body which lay between it and the head of the fœtus. This foreign body proved to be a tin box, having a "long-rounded" shape, and it lay transversely across the os uteri. As the head could not pass the obstacle, he proceeded to remove it, which he did by turning it so that the lid presented, taking the lid off, and, securing the body of the box with a pair of bone forceps, he extracted it by careful rotatory movements. He discovered later that the os uteri was incapable of dilatation beyond the size of half a crown, as there were some dense fibrous scars at the right lower surface. On division of these

scars the rest of the parturition took place naturally, and the patient made a good recovery. She admitted that she had, as a child of 12 after her first menstrual period, passed the tin box into the vagina to prevent a further hæmorrhage. She had later on attempted to withdraw the box, but in vain. She menstruated regularly, and at the age of 25, after having been married for six months, aborted in the fifth month of pregnancy. She had kept her secret, and had not even told her husband of the box. Shortly before the abortion she had felt the box in the vagina, but, after this had taken place, to her surprise it had disappeared. She was certain that it had not passed through the vulva. Thus the tin box, which measured about 4 in. in diameter, and 1½ in. in height, had been in the vagina for over thirteen years, and in the uterus for a year and a half, without producing any bad symptoms.—*Brit. Med. Journ.* Sept. 7, 1901.

Removal of the Stomach.

In 1897 Schlatter, of Zurich, performed the first total extirpation of the stomach; the patient lived for a year. Since then no fewer than 21 similar operations have been performed, with 18 recoveries. Schuchardt's survived two years. Ribeira, of Madrid, has the "record" number of three of these operations, but in one of its cases it was found that there had been an error of diagnosis as the disease was not malignant, the patient is still living two years after the operation. Four cases died from the operation, one on the table, two within a few hours and one on the sixth day. Boeckel, who reports his case in the current number of the *Revue de Gynécologie et de Chirurgie Abdominale* operated at Strassburg on October 5th, 1900. The patient was thirty-eight years old and had lost flesh from malignant disease which was diagnosed as seated in the transverse colon. There was a big ulcer at the pyloric end of the stomach and a cancerous mass in the wall of the lesser curvature. The patient was living and well on April 3rd, 1901; she had gained thirty-six pounds in weight. She had a good appetite and the fæces were normal. The essential steps of this operation are, first, the division of the gastro-colic ligament and gastro-splenic omentum; then a forceps is placed across the cardiac orifice, and another a little lower, the stomach being divided between them. The gastro-hepatic omentum is next divided; both curvatures and the cardiac end of the stomach are now free. It only remains to clamp the first part of the duodenum with two forceps, and to divide between them; the stomach is thus entirely liberated. Boeckel succeeded in making an end-to-

end anastomosis between the cardiac end of the œsophagus and the cut end of the duodenum; the former cannot be drawn down, but the duodenum was in this case easily drawn up to the œsophagus. In some other cases œsophago-jejuno-stomy had to be practised. Boeckel promises further information concerning this remarkable case.—*Brit. Med. Journ.*, Sept. 14, 1901.

The Pathology of the Jew.

Kretzner of St. Petersburg contributes to the *St. Petersburger medicinische Wochenschrift* of May an interesting paper on the Jew as affected by disease. The low mortality and high fecundity of Jews are well known, and are amply borne out by Hoffman's statistics for a period of eighteen years in Prussia. The Jewish mortality was 21.6 per cent., while for the rest of the Prussian population it was 29.6 per cent. Their fecundity is shown by the fact that whereas the increase of the Jewish population for that period was 34.7 per cent., the proportion was less than 28 per cent. for the rest of the population. Professor Benedikt of Vienna also concurs in this view of the relatively prolific nature of Jewish women. "At the present day, among orthodox Jews, every female is condemned from nativity till the menopause to an uninterrupted series of pregnancies, parturitions, and lactations." One interesting feature as regards the proportion of the sexes is the unusual excess of boys over girls amongst Jews in both Austria and Prussia. Thus in Austria, according to the researches of Schwimmer, 128.5 boys are born for every 100 girls born among Jews, while in the general population the ratio is 105.8 boys to 100 girls. Of Jews who have attained to eminence in the medical profession of late years the following are mentioned: Bernstein, Cohnheim, Freund, Henle, Heidenhain, Hirschberg, Jaffe, Liebreich, Mendel, Meynert, Saenger, Schreiber, Senator, Traube, and Zuckerkandl. The nervous system of the Jew is especially prone to be subject to disorder, and this applies to both sexes. Puerperal psychoses are very common among Jewesses, and general paralysis is prevalent among the men. The official report for Bavaria and Prussia for 1871 showed that blindness, deaf-mutism, and insanity generally were twice as prevalent among the Jews as compared with the native Germans. Myopia and trachoma are both frequent among the Jews in Russia. On the other hand, pulmonary phthisis, as shown from military statistics, is infrequent among the Jewish soldiers, the relative frequency being 1 Jew to 22.3 Christians and 1.7 Mohammedans in the Russian army.—*Brit. Med. Journ.*, September 21, 1901.

Treatment of Sarcoma by the Roentgen Rays.

Carl Beck (*Münch. med. Woch.*, August 6th, 1901), of New York, has treated a case of recurrent sarcoma by the Roentgen rays with apparent success. A man, aged 36, had had a black spot, possibly a mole, over the left external malleolus for fifteen years. This began to enlarge rapidly in November 1900, and by Christmas was the size of an apple, ulcerated, and adherent to the underlying tissues. There was an enlarged inguinal gland. Amputation was refused, and the operation was limited to removing the tumour with the underlying periosteum and the gland in the groin. It was a melano-sarcoma. Six weeks later the tumour had recurred, and though flatter had a greater circumference than before its removal. There was also multiple bluish-black nodules, the size of a pea round about it. There was a mass of inguinal glands the size of a goose's egg. These, with the tumour, were again extirpated. Four weeks later the recurrent tumour was surrounded by at least thirty smaller nodules the size of grapes, which bled readily when touched. There were also numerous nodules over the inner side of the calf, and the inguinal glands were again enlarged. A third extirpation of the tumours, which were of alveolar structure, with pigment in the cell nests and in the cells of the interstitial connective tissue, was performed. The Roentgen rays were applied to the wounds over the ankle left after the third operation, at first for ten minutes, then for twenty, thirty, and at last forty-five minutes. After seven applications at intervals of from two to three days, the whole course lasting six weeks, there was no sign of recurrence, and some of the nodules over the calf (which apparently had not been removed at the operation) had completely disappeared, while others were diminishing. During this treatment the inguinal glands again enlarged. They were removed, the rays were applied to the wound, and three weeks later there had been no recurrence. Thus, nine weeks after the removal of the tumour over the ankle there had been no recurrence, though before the rays were applied the growth rapidly reappeared after removal. The fact, also, that typical sarcomatous nodules over the calf disappeared entirely under the rays without surgical interference proves their efficacy. The writer has seen also an epithelioma disappear entirely under the application of the x rays. He suggests that they should be applied in every case of malignant tumour in which it is doubtful at the operation whether the whole of the disease has been removed in order to guard against recurrence.—*Brit. Med. Journ.*, September 28, 1901.

Dry Washing.

It is a familiar boast of English people that we are above all others a washing nation. Soap-and-water is a standing dish in Great Britain, but so little were we disposed to credit the habitual cleanliness of foreigners that a piece of soap in the valise was till recently the habitual companion of an Englishman on his travels. Nowadays such an item is scarcely a necessary part of the traveller's impedimenta, though there are still fair-sized hotels on the continent where soap may be searched for in vain in the bedrooms, while the smallest

inn in this country would blush to the roof at such a deficiency. All kinds of theories have been raised to account for this national tendency to ablution, and most diverse qualities have been attributed to its possession. The familiarity of islanders with water, and the use of it occasioned by the national custom that led the ancient Britons to paint their bodies, are solemnly urged as the foundation of the English proneness to washing; and the fresh complexions and smooth skins of young Englishmen are held to replace the more dusky and hirsute countenances of the Latin races because of their closer and more frequent acquaintance with the articles of the washstand. With fanciful theories we have naturally no concern, and we believe that clear ruddy cheeks are a national inheritance for the same, if equally indiscernible, reasons as a tendency to roam or a dull ear for music. If, however, we do not attempt to explain the presence of a widespread habit and leave it to idle imaginations to determine why Englishmen wash, it is nevertheless our concern that such habits should be for the general welfare and should not be carried to injurious excess. It is quite obvious that even in England there are people who wash too little. It is not so generally recognised that some people wash too much. The skin is not well adapted to frequent application of water accompanied by even the least irritating of soaps. A tendency arises to maceration of the superficial part of the epidermis, which is too frequently removed and occasions probably too rapid a proliferation of the cells of the Malpighian layer. There is no doubt that many cases of roughness of the skin of the face come from the frequent applications of water. It is a good thing to rub the face with a soft, clean, dry towel two or three times a day. If, in addition, water is used in the morning and at night the skin will be kept in a sounder, smoother, and healthier state than if, as is often the case, soap and water are used three or four times a day. Men are not often offenders in this respect, most men sparing little time for the refinements of the toilette. Women and children, whose skins are the most easily affected by superfluous ablution, are the very persons in whom such excess is too common. They should be taught that there are dry methods of cleanliness as well as wet ones.—*Lancet*, September 28, 1901.

Narcolepsy.

Louis Furet (*Thèse de Paris*, 1901) refers to the interesting condition known as narcolepsy which is characterised by "irresistible attacks" of sleep. These may come on at any time during the day, but are usually of brief duration as contrasted with the so-called sleeping sickness of West Africa, where prolonged somnolence and even lethargy are the characteristic symptoms. In 1880 Gelineau gave the name of *narcolepsie* to this disorder, which he regarded as an affection of the nervous system *sui generis*. Soon afterwards attention was called to its occurrence in diabetes. Féré regarded it as a disease having affinities with epilepsy, and Dutil thought it was allied to hysteria. More recently Robin and Paul Sainton have recorded cases which show a close association between obesity and the tendency

to narcolepsy, and in which treatment and cure of the obesity cured the narcolepsy. It has been suggested that a condition of thyroid insufficiency is one of the factors underlying both obesity and narcolepsy, and in this connection the habitual apathy and somnolence of myxœdema are certainly noteworthy. Furet points out that the sleep in narcolepsy has all the features of normal sleep—relaxation of muscles and limbs generally, subsidence of sensorial and psychical activity, slowing of the heart and of respiration, and dilatation of the pupil. On waking the patient recollects having slept and feels refreshed as after habitual sleep. He does not awake with the feeling of lassitude and the sense of exhaustion of the epileptic after a fit. The average duration of narcoleptic sleep is from ten to thirty minutes, and it may occur once or several times daily. Differential diagnosis, must be made from the sleeping sickness of Africa, which is marked by an elevation of temperature, from meningo-encephalitis of influenzal origin, from coma of renal or diabetic origin, and from hysterical sleep. In cases of narcolepsy associated with diabetes, obesity, or nervous affections prognosis is on the whole favourable. If hepatic disease is present the prognosis is bad. Treatment should be directed towards the fundamental morbid conditions present. Thus, for example, if neurasthenia is present, rest, fresh air, generous feeding, and the administration of glycerophosphates should be the treatment adopted; if the patient is obese, the systematic reduction of fat and the increase of general body metabolism by the use of exercises, strict and appropriate dieting, and thyroid administration from the principles of treatment. Increased elimination of toxins by the bowel should be favoured by the use of saline aperients or vegetable laxatives, and digestion should be carefully regulated. The total withdrawal of alcohol from those accustomed to indulge rather freely in it is often an aid to treatment.—*Brit. Med. Journ.*, September 21, 1901.

The Localisation of Cerebral Tumours in the Parietal Region.

Mills, of Philadelphia (*Philad. Med. Journ.*, April 20th, 1901), gives an account of five cases of cerebral tumour of the parietal region of the brain, and discusses the differential diagnosis as regards more exact localisation than has been hitherto possible. Two of the cases have a special interest, and are as follows: Case 1, a man of 57 years had for five months ataxia of the right arm and later of the right leg. There was also loss of muscular sense and of cutaneous sensibility, astereognosis, paresis, and finally paralysis of the arm and leg. Reflexes exaggerated on the paretic side with ankle clonus. The patient was emotional and hysterical. Operation by W. Keen showed tumour of superior parietal lobule. Enucleation and removal followed by recovery, and no symptoms of return or recurrence of the growth fourteen months after the operation. Case 2, a man aged 65 years, had noticed gradual loss of power in the right hand for five weeks with impairment of sensation in the same. He would drop things unconsciously from his hand. He could not tell that he was holding

things in his hand except by looking and did not know whether his fingers were in his pocket. There was astereognosis of the right hand and a sensation as of a cushion under the right foot. The pressure sense, thermal sense, and the pain sense were diminished or absent in the right hand, especially in the ulnar nerve distribution. The muscular sense was diminished, there was no wrist or elbow jerk, but Babinski's great toe reflex (*Phénomène des orteils*) was present on the right side. Later there followed cephalalgia with throbbing chiefly in the left temple. Four days later he had a severe attack of tonic spasms of the right arm lasting fifteen minutes. Marked optic neuritis in the left eye and commencing neuritis in the right. No hemianopsia. There was a spot tender to percussion on the left side of the skull, close to and half way up the coronal suture. Headache and general symptoms now grew worse. Diagnosis of tumour in the superior parietal convolution of the left side, with some invasion of the Rolandic area. Operation by trephining showed a tumour just growing through the cortex. As much of it could be removed as could be enucleated with the finger and curette. The operation was a serious one, and he rallied, but grew weak afterwards, and died two days after the operation, with a temperature of 101°. Necropsy showed the tumour to be an infiltrating glio-sarcoma without a capsule. The following diagnostic conclusions are put forward by Mills: (1) Tumours of the posterior parietal region give as their most important localising symptoms disturbance of cutaneous and muscular sensibility, and especially astereognosis, or the incapacity of recognising solid objects placed in the hand. (2) Other symptoms often present in such cases are the result of compression or invasion of adjacent cerebral regions. (3) Tumours and other lesions implicating the angular gyrus and the adjacent parts (middle occipital and upper retrotemporal) give as their main localising symptoms word-deafness and word-blindness, with the usually accompanying speech disturbance. Later there may appear homonymous hemianopsia, astereognosis, and disorders of cutaneous and muscular sense.—*Brit. Med. Journ.*, September 21, 1901.

The Diagnosis of Addison's Disease When Pigmentation is Absent.

In exceptional cases of Addison's disease the characteristic pigmentation is absent. In ordinary cases the pigmentation can be locally intensified by irritation, such as the application of a blister. This fact might have suggested the possibility of producing pigmentation by irritation in cases in which it is entirely absent, but such an experiment does not appear to have occurred to anyone. At the meeting of the Société Médical des Hôpitaux de Paris on July 19th M.L. Jacquet and M. Trémollières related two cases in which pigmentation was thus produced accidentally. In the first, a case of spinal caries, the application of poultices produced pigmentation of the abdomen and the necropsy revealed tuberculosis of the suprarenal capsules. In the second case the patient was a man, aged 31 years, who was admitted to the Saint Louis Hospital on Feb. 28th, 1901. He was very feeble

and "wasted to a skeleton." He suffered from acute and incessant abdominal pains, especially in the right iliac fossa. They were increased by movements and by light pressure, relieved by deep pressure, and became recrudescant about two hours after meals. After paroxysms of pain vomiting supervened. Slight pigmentation had recently appeared in the fronto-temporal regions and there were one pigmented spot on the upper lip and another on the lower lip. At the apex of the left lung was a cavity and at the base friction sounds were heard. Fulness was felt in the epigastrium. To relieve the pains linseed-meal poultices with a little mustard and compresses of camphorated alcohol were alternately applied to the abdomen. About a fortnight afterwards marked brown pigmentation of the abdomen was noticed. The pigmentation extended beyond the limits of application of the poultices. The hairs were not hyper-pigmented. On July 18th the pigmentation was still present and of the same intensity, though no applications had been made to the abdomen since April. The poultices and compresses were applied to the anterior surface of the right thigh. A rosy and transitory discolouration was first produced. In some days it became red and permanent. In less than three weeks pigmentation similar to that of the abdomen was produced. Linseed-meal poultices (without mustard) were applied daily for two hours to the left shoulder, beginning on June 12th. After the removal of the poultice a rosy tint remained which progressively became more and more intense and persisted longer and longer. On July 2nd it was red and permanent and pigmentation was commencing. On July 6th the latter was well marked. In a similar manner pigmentation was produced on the calves. The importance is obvious of the method of *extériorisation de la mélanodermie latente*, as the authors term the phenomenon. The diagnosis of Addison's disease in the absence of pigmentation can thus be made possible.—*Lancet*, September 28, 1901,

Some Chemical Mysteries.

It has happened more than once that just as we had firmly established our sciences upon a basis which seemed as unyielding as the Biblical rock, and had poiffully formulated theories that explained all phenomena with unvarying simplicity, some obscure experimentalist made a discovery which by no possibility could be twisted and moulded to fit the existing system and, indeed, even challenged the truth of all established doctrines. Thus it was that Young and Fresnel overthrew the old emission theory of light with their experiments in the phenomena of interference; and thus our theories of chemical interaction, and even our conception of matter, may be modified by the researches made within the last few years in the field of the radio-active substances.

What chemist formerly would for a moment have thought of attacking the law of Avogadro—the law which tells us that if the temperature and pressure be equal, equal volumes of different gases contain the same number of molecules? And yet a modern chemist,

Lord Rayleigh, did find it necessary to test the truth of that law by precise determinations of the densities of well-known gases. If he had never studied the behavior of nitrogen, or if he had considered the discrepancies which he observed in determining the vapor density of that gas, as errors due to defective observation, as many a chemist before him had done, argon and the other newly discovered constituents of the atmosphere might still be unknown, and many chemical doubts never aroused. Roentgen, too, found it necessary to revive theories of radiant matter which we thought we had long since refuted, and he supplied us with rays which we cannot yet explain. Becquerel increased our perplexity with his thorium and uranium rays. But when M. and Mme. Curie exhibited to our astonished eyes the results which they had achieved with radium and polonium, we were completely mystified and were compelled to admit that there were more things in chemistry than our philosophy had dreamed of. Other chemists have also experimented with uranium, following methods different from those of the Curies, and have obtained additional active substances.

Still another supposed element has been found to mock our periodic system. It has been discovered that thorium, when subjected to the action of acids, yields helium, and that thorium is often associated with radio-active substances.

Helium and its gaseous companions on the one hand, the radio-active substances on the other hand, are mysteries which have so far completely baffled our chemists. And uranium and thorium, elements with which we once considered ourselves thoroughly familiar, are now to us as curious as if they had been but the discovery of yesterday.

If the eccentricities of uranium, thorium and helium, and the mysteries of Roentgen rays cannot be adequately accounted for by our existing chemical system, the question arises: Can our system be wrong? Chemistry is an exact science—at least we had flattered ourselves that it had been at last raised to that eminence. But an exact science is infallible, and will hear nothing of exceptions. Some day a chemist will be found whose mind, broad enough to grasp the scattered facts unearthed in the course of a century of research, will elaborate a chemical system which may prove as revolutionary in its way as the theory of Young; but which will embrace in its comprehensiveness those puzzling gases and radiant substances so utterly inexplicable at present.—*Scientific American*, Sept. 7, 1901.

CLINICAL RECORD.

Foreign.

A CASE OF SCARLATINA COMPLICATED WITH ACUTE PARENCHYMATOUS NEPHRITIS.

By F. W. Wood, M.D.,

Interne, Cook County Hospital.

Miss D. This patient entered the contagious ward during the first week of September 1900. She being unable to give a definite history of her illness, the mother stated that the patient had been sick nearly two days. Her illness began by headache, sense of chilliness, anorexia, nausea and vomiting, "sore throat," followed by high fever and "running off of the bowels." Pulse became rapid; sleep very restless; patient became very irritable, cross and wished to be left alone.

Examination. Reveals a well-nourished girl ten years old; mind clear, but patient very irritable and restless; face dry, hot and red; faint flush about neck and chest; a white ring about the mouth and chin; mucous membrane over uvula, tonsils, pharyngeal wall, and soft palate was covered by a punctated rash. Tongue was coated heavily, of a dirty whitish color, the papilla showing through on tip and sides; skin dry, hot, with faint flushed condition about face, neck and chest; heart rapid and labored; pulse 154, temperature 104°, respiration 28; chest, abdomen, and extremities negative.

Smear from throat examined immediately; stained with Loeffler's methylene blue shows streptococci and bacillus simulating the bacillus described by Dr. Class.

Urine examination. Dark amber color; acid reaction; specific gravity 1030; no albumin, no sugar; sediment; urates abundant, otherwise negative.

Treatment. After a hot bath patient was immediately put to bed, well rubbed and hot drinks were given; erythema seemed more pronounced about neck and chest; liquid diet; confined to bed in warm, quiet, room, and belladonna 3x mv. q. i. d. was given.

In a few hours the patient was again visited and found very restless, delirious and the erythema had failed to appear. Pulse was 120, temperature 105° F., respiration 28. A hot soda bicarbonate pack was then ordered, to be repeated in four hours. The bedspreads saturated with a hot saturated solution of bicarbonate of soda, were applied to the whole surface of the body at intervals of a few minutes the patient being protected by woolen and rubber blankets. The applications were made under cover, removing one as soon as cool and applying a hot one, this being continued over a period of thirty minutes to one hour, and followed by a brisk rub.

In twenty minutes the patient was asleep, temperature 102°, pulse 120, respiration 25. In a few hours' time an intense scarlet, punctated, erythematous rash had appeared over the whole body. The second pack reduced the temperature to 101° F. and pulse 120.

Patient's condition seemed to improve until two days later, when urinary examination revealed a few casts of hyaline and granular

character. Abundance of water insisted upon and remedy changed to cantharis 3x m.v., t. i. d. Another thirty-six hours showed some tenderness over region of kidneys and occasionally pain and smarting on urination. Urine was clear; acid reaction; specific gravity 1007; albumin present; no sugar; sediment; hyaline and granular casts.

A mild saline diuretic, heat to back, saline cathartic and milk diet were then ordered and given. There being no apparent improvement in twenty-four hours, colonic flushings were ordered every four hours, followed in thirty minutes by normal saline solution ten ounces to be retained. Twenty-four hours specimen of urine received thirty-six hours later showed a faint trace of albumin and occasionally a cast. Patient's condition was, however, brighter, and the pain in the back relieved. Twenty-four hours later another specimen showed absence of albumin, and casts. Repeated examination during convalescence, failed to reveal any return of the symptoms or slightest indication of the previous kidney disease. The patient was discharged at the end of six weeks a well child.

These cases, as simple as they may seem, illustrate the diuretic effect of colonic flushings followed by normal saline solution in the treatment of acute parenchymatous nephritis. The effect is not only on the renal organs alone but upon the whole system. Edema of the extremities which may exist, rapidly disappears. Headache and backache, an often persistent symptom, cease to annoy. The mind becomes clear, the appetite is stimulated, the whole intestinal tract becomes active so that cathartics are rarely needed. Toxic elements that constantly accumulate in the bowel and which play so important a role in the etiological factors of nephritis are quickly and efficiently eliminated.

The normal saline solution being thrown high into the colon is rapidly absorbed, playing two silent parts. First, it takes the place of the water refused by the patient per mouth which is a common obstacle to overcome, and second, being absorbed, it is as rapidly eliminated by the kidneys, greatly increasing the amount of the urine as if taken into the stomach. The renal tubules are flushed, the amount of urine per twenty-four hours doubled, albumin ceases to be eliminated and casts fail to be found either in the sediment or by aid of centrifuge.

In twelve cases of acute nephritis in half of which the nephritis was a complication of infectious disease, colonic flushings, followed by normal saline solutions gave results equally as good as the above. The amount of urine in some cases reaching as high as 156 ounces in twenty-four hours.—*The Clinique*, August 15th, 1901.

Gleanings from Contemporary Literature.

THE WAR AGAINST CONSUMPTION.

By R. E. DUDGEON, M.D. •

The British Congress on Tuberculosis has had its great meeting, attended by experts from abroad, who have given us the results of their experience and observations.

The first Address was delivered by Professor Robert Koch, of Berlin, who may justly be regarded as the greatest authority on the subject of tuberculosis, as it is he who is credited with the discovery of the bacillus so universally acknowledged to be the cause of tuberculosis, and more especially of that form of the malady called phthisis pulmonalis, or consumption of the lungs. At one time Dr. Koch's zeal took him rather too far, when he imagined he had discovered a cure for the disease in hypodermic injections of an elaborately prepared fluid made from cultures of the bacillus itself. This, as we all know now, was a disastrous mistake, and it is not even alluded to in Koch's address, so we may conclude that the once-famed injections of tuberculin are abandoned as a remedy for all forms of tuberculosis, though they do not yet seem to be discarded as a means of ascertaining the existence or non-existence of tuberculosis in cattle. In a subsequent speech Dr. Koch did indeed assert that tuberculin injections had some therapeutic value in early uncomplicated cases, but this is very different from the immense anti-tubercular virtues ascribed to them when first proposed.

Ever since the promulgation of Koch's discovery of the bacillus tuberculosis it has been asserted, and generally believed, that the bacillus found in connection with the tuberculous diseases of cattle was identical with that asserted to be the cause of tuberculosis in human beings; and as it was proved that the milk and butter obtained from tuberculous cattle and the flesh of these animals swarmed with these microbes, the most solemn warnings were authoritatively given against the employment as food of the milk and flesh of tuberculous cattle. The proposal was made, and to a certain extent carried out, that cows and oxen should be tested by injections of tuberculin, to which if they responded they should be slaughtered, and their carcasses burned or buried but not employed as food.

But now comes the great Koch and assures us that we have been all wrong in supposing the bovine bacillus tuberculosis to be identical with that of man. He conducted a series of experiments, regardless of expense, as he was assisted by the co-operation of the Ministry of Agriculture, which provided him with the material. Here are some of his results:—

"A number of young cattle which has stood the tuberculin test, and might therefore be regarded as free from tuberculosis, were infected in various ways with pure cultures of tubercle bacilli taken from cases of human tuberculosis; some of them got the tuberculous sputum of consumptive patients direct. In some cases the tubercle bacilli or the sputum were injected under the skin, in others into the peritoneal cavity, in others into the jugular vein. Six animals

were fed with tuberculous sputum almost daily for seven or eight months ; four repeatedly inhaled great quantities of bacilli, which were distributed in water, and scattered with it in the form of spray. None of these cattle (there were nineteen of them) showed any symptoms of disease, and they gained considerably in weight. From six to eight months after the beginning of the experiments they were killed. In their internal organs not a trace of tuberculosis was found."

A corresponding series of experiments was performed on cattle free from tuberculosis with tubercle bacilli that came from the lungs of an animal suffering from bovine tuberculosis. All the animals so treated speedily suffered and either died or were killed after one, two, or three months. Post-mortem examinations showed them to be all affected with tuberculous disease.

Having satisfactorily proved that cattle could not be infected by human tubercle, Koch proceeded to examine the evidence for the infection of human beings by bovine tuberculosis, and though he could not practise experimental investigations on human beings like those he had done on cattle, he examines the evidence, and comes to the conclusion that "if such susceptibility really exists, the infection of human beings is but a very rare occurrence. . . . I therefore do not deem it advisable to take any measures against it."

This from the great high priest of tuberculosis and the tubercle bacillus must have been a terrible blow to those who for many years have been curdling our blood and making our flesh creep with their incessant warnings against the dangers incurred by the community from drinking unsterilised milk and eating the flesh of tuberculous cattle. How many infants have been rendered seriously ill by being fed, by the advice of the doctor, on boiled milk, which their delicate stomachs could not digest ! If Dr. Koch's views are correct—and there is no reason to doubt this—it follows that there is no risk whatever in drinking unboiled milk fresh from the cow, even should its source be a tuberculous animal, nor is there any danger to be apprehended from eating the flesh of tuberculous cattle. Indeed, the experiment of feeding whole communities on this flesh has been tried on a large scale, and has demonstrated the perfect wholesomeness of such flesh. Thus we read : "The authorities of Wurzburg authorised, under the control of Professor Reubold and Veterinary Dr. Hoecker, the sale of the meat of tuberculous cattle to the inhabitants of certain localities, who were made to consume it themselves and in their families. These people, who were under medical inspection, consumed the suspected meat in all forms—boiled, roasted, in sausages, and even raw. It was their chief food for weeks at a time. At the end of a year (1867 to 1868) examination showed that the results were *entirely negative*. As a consequence of this experience, tuberculous meat was supplied throughout the country to the poor. After fifteen years, an inquiry made into the morbidity and mortality of the families fed on the meat showed that from 1860 to 1882 out of 130 persons, 11 had died, and in none of these could the death be attributed to tuberculosis" (Jousset. *La Tuberculose*, p. 58).

The facts regarding the innocuousness of the flesh of tuberculous cattle have been known many years, and now Koch has shown that the tubercle bacillus of cattle is essentially different from that of human beings and incapable of infecting the latter, so that cow's milk, though swarming with the bovine bacillus tuberculosis, can do no harm to infant or adult man. But this testimony of the great tubercle expert was received with much hesitation and even incredulity by the other members of the Congress. Dr. Brouardel, the eminent Parisian expert, simply ignored Koch's statements on the subject, and sheltering himself behind the "great hygienist, Sir R. Thorne Thorne," ascribed the increase of the mortality of infants from tuberculosis to their ingestion of "contaminated milk"—that is to say, milk containing bovine tubercle bacilli. As the scare about the bacilli-infected milk has led to the increased precautions against such contamination introduced into dairies and the general adoption of the sterilisation of milk by boiling and pasteurisation during the last decade or two, it seems rather strange that the increased mortality from tuberculosis among infants, amounting, according to Sir R. Thorne Thorne, to 27 per cent., should be ascribed to the milk, in spite of all the latter-day hygienic precautions taken to render it purer and freer from bovine impurities. Lord Lister, who had formerly constituted himself the champion of Koch's so-called discoveries, especially with regard to the disastrous injections of tuberculin for the cure of tuberculosis, while admitting that Koch's experiments had proved that cattle could not be infected with human tuberculosis, said that "the evidence on which Koch relied as showing that bovine tubercle could not be transmitted to men, did not seem at all conclusive." Professors Nocard, Bang, and Sims Woodhead followed in the same strain, and deprecated the cessation of the precautions against contaminated milk, and the Congress passed a resolution "that medical officers of health should in no way relax their efforts to stop the spread of tuberculosis by means of milk and meat." Of course, it could hardly be expected that gentlemen who had up till that moment been inveighing against the use of tubercle-infected milk and meat should all at once, at the bidding of even the great tubercle magician Koch, acknowledge that precautions against bovine bacilli were useless, so they advised the retention of the precautions which in their secret hearts they knew to be superfluous. But they discreetly left the resolution to be proposed by Sir H. Maxwell and seconded by Lord Spencer, so that, hereafter, when the whole world becomes convinced of the harmlessness to men of bovine bacilli, they may triumphantly declare that it was not doctors but laymen who proposed the retention of the useless precautions against an imaginary danger. We doctors all claim to be infallible, except, perhaps, the very oldest of us, so it would never do to admit we are ever wrong. If appearances are sometimes against us, we are skilful to find a mode of extricating ourselves without a stain upon our character for omniscient infallibility. Thus, when the faculty had to abandon blood-letting in inflammatory diseases, which had hitherto been their "sheet anchor," as they loved to call it—not because Hahnemann and his

followers had shown them that these diseases were more successfully treated without abstraction of blood, but because their patients refused to be bled and threatened to transfer themselves and their fees to the homeopaths, who cured inflammation much better without bleeding—the faculty was quite equal to the occasion, and invented an explanation of their change of face, which saved their claim for infallibility and enhanced their reputation for diagnostic skill. Inflammatory diseases, they alleged, up to about the middle of last century, were of such a sthenic or ardent character that they demanded blood-letting, so the doctors were right to bleed. After that period (accidentally coincident with the spread of homœopathic practice and with the refusal of patients to be bled) inflammations suddenly changed their type and became asthenic and debile, counter-indicating blood-letting and demanding stimulants and tonics. And so the patient world, who are ever ready to take doctors at their own valuation, cheerfully accepted the explanation, as it saved them from what they most dreaded—the loss of their blood and the infliction of the tortures of blisters, setons, and other painful and debilitating measures.

The ingenuity of the faculty will doubtless hit upon some analogous explanation, compatible with their pretensions to infallibility, for their abandonment of the precautions hitherto insisted on for eliminating the dreaded bovine tubercle bacillus from milk and meat.

It was evident from the proceedings and discussions at the Congress, especially at the meeting of July 24th, that the majority of the members were very unwilling to abandon the idea that tuberculosis could be conveyed to human beings by the milk and meat of tuberculous cattle. Evidently the chief experts were too deeply committed to the opposite view to allow that Koch was right. So they sneered at Koch, and insisted on the dangerous character of milk from tuberculous cows, and proposed the most stringent measures to secure milk absolutely free from the dreaded bacillus such as constant inspection of dairies, the application of the so-called tuberculin test to all cattle, and the wholesale slaughter of all beasts who responded to this test, such as had been effected on the late Queen's herd of thirty-six valuable cows. There were not wanting members who denied the conclusiveness of the tuberculin test, such as Mr. Bowen Jones, who "referred to the numerous cases in which cows reacted to the test, shown subsequently to be non-tuberculous;" and Dr. McWeeney "had seen two cases which proved to be tuberculous after having failed to respond." It is curious that the tuberculin used to test cattle with is, according to Koch, "made from tubercle bacilli of human origin," and yet, according to the same authority, cattle are not susceptible of infection by bacilli of human origin! The explanation given by Koch is too vague to be satisfactory. Here it is, *valeat quantum*: "The reaction was produced in both man and cattle, and although the two bacilli were different, they produced a common 'group' reaction," whatever that may mean. I remember quoting the experiments of a certain doctor who had inoculated with tuberculin a whole lot of infants, on whom no effect whatever was produced! Lord

Lister made a feeble attempt to vindicate the consumption-giving power of the bovine bacilli by suggesting that they might be transformed into human bacilli. The transformation of innocuous into pathogenic microbes is a favourite idea with bacteriologists, but it is merely a hypothesis unsupported by any satisfactory evidence, and Lord Lister's suggestion of the transformation of bovine into human bacilli is unworthy of serious consideration, as it is completely refuted by Koch's experiments.

The very modern opinion that consumption is a contagious and not a hereditary disease was conspicuous in the Congress. To my mind the older opinion that consumption is an eminently hereditary disease is too firmly established by facts to allow me to abandon it at the dictum of any modern expert. Every physician and many non-medical observers are familiar with cases of families who show a hereditary phthisical taint, where one member after another have fallen victims to consumption in spite of all care taken to ensure the most perfect sanitary conditions that wealth and affection could command. We have seen the fell disease transmitted through several generations, notwithstanding all hygienic precautions.

At the congress hardly any mention was made of hereditary tuberculosis. Phthisis was universally held to be derived from Koch's bacillus (though the best authorities state that the bacillus is only found after the disease is somewhat advanced), and the general opinion was that if we could prevent the access of this bacillus to the lungs, phthisis would cease throughout the land. Apart from the communication of the bacillus by means of the milk and meat of tuberculous cattle, which, after Koch's experiments, must be considered an impossible source of the disease, the principal if not the sole agent in the production of phthisis was held to be the sputum of phthisical patients which swarmed with tubercle bacilli. In Koch's words, "The only main source of the infection of tuberculosis is the sputum of consumptive patients." The mode of the access of the bacillus was briefly this: The sputum ejected on streets, floors of houses, railway carriages, public rooms, &c., dried, and was converted into dust; this dust, containing the living bacillus, was raised by wind and draughts of air into the atmosphere and inhaled into the lungs by healthy persons, and there produced the disease. The poor who live packed together in small ill-ventilated rooms and in other unhygienic conditions were peculiarly exposed to the attacks of these pathogenic microbes; but as consumption is not unknown among those who enjoy the best sanitary environment, it is the dust of the general atmosphere laden with the tubercle bacilli derived from the dried and pulverised sputum ejected by phthisical patients in the street and other places of public resort which infects them. In every case it is the bacillus, and that alone, which can and does infect. This conviction of the Congress was expressed in the first resolution moved by the distinguished dermatologist, Mr. Malcolm Morris, and passed unanimously: "Tuberculous sputum is the main agent for the conveyance of the virus of tuberculosis from man to man. Indiscriminate spitting should be suppressed." I do not know by what compromise "bacillus" was replaced

by "virus" in this curious resolution. Possibly some members, believing in the contagious nature of phthisis, were not yet quite converted to its microbial origin, so they insisted on *virus* rather than *bacillus*, and this substitution the bacteriologists would not object to, as most of them believe that it is not the actual microbe, but a toxin or virus it secretes (though having no organs it is not clear how it can have any secretions) which is the real morbid agent. The sputum being the medium for the conveyance and dissemination of the venomous bacilli or virus, and hence the cause of phthisis, if we could prevent phthisical subjects spitting in public resorts, we should prevent others taking phthisis. This seems to be Professor Brouardel's opinion. He says: "The danger is in the sputum, which contains thousands of the contagious germs. To expectorate on the ground is a disgusting and dangerous habit. Once the habit has quite disappeared tuberculosis will decrease rapidly." And so the resolution; "Indiscriminate spitting should be suppressed." What is meant by "indiscriminate spitting" we are not told, nor how it is to be suppressed. "In America," Dr. Brouardel tells us, "this habit is against the law," and he says that for a first offence there is a fine, for a second imprisonment. "In Sydney," he says, "a fine of £1 is imposed on persons for spitting in the streets." The congress might have recommended the Sydney plan, which would no doubt have met with the full approbation of the Chancellor of the Exchequer, who might thereby be enabled to replenish his exhausted treasury and pay off the expenses of the deplorable Boer War.

Do not spit to waste your spittle,
Else you soon may have too little,"

used to be a nursery precept, but the needy Chancellor would alter that to --

"Spit when'er occasion offers,
The fines will fill my empty coffers,"

A former Chancellor of the Exchequer boasted that the British people had drunk the cost of the Abyssinian War. If the spit fine on the Sydney scale is enforced our present Chancellor might be able to boast that the British people had spat the cost of the Boer War. But as it is only the sputum of consumptive that contains the dangerous germs, one does not see why persons who are not consumptive should be deprived of the pleasure of spitting when so inclined. To fine the whole community for spitting when only a few can do any harm by spitting is of a piece with the legislation which compelled us to muzzle all healthy and good-tempered dogs because a few had rabies and might bite.

The Congress, having unanimously decided that phthisical sputum "indiscriminately" distributed is the cause of phthisis, next passed a unanimous resolution, proposed by Dr. Woodhead and seconded by Sir William Broadbent, "That all hospitals and dispensaries should supply every phthisical patient with a pocket-spittoon." I doubt if the dispensary patient would use it. If pretty, he would probably put it on his chimney-piece as an ornament, if ugly, he would most likely give it to his wife to keep her needles and thread and buttons in, and go on spitting at large as

usual. It is easy enough to get patients in hospitals to make use of spittoons; the best and simplest are paper spittoons, such as are used in the Edinburgh Infirmary, which can be burned with their contents; but as many phthisical patients have to continue at work as long as they are able, it would be difficult, if not impossible, to get them to use the most handy pocket-spittoon, or to prevent them expectorating on the ground. Ladies' trailing dresses were denounced by Dr. Knopf and others as being insanitary. But it appears to me that the fashionable skirt sweeping along the pavement is eminently sanitary. By it our pavements are cleansed of phthisical sputum and of much other dirt, and thereby rendered sanitary. To be sure, the long-skirted lady does not improve the sanitary condition of her own dwelling by bringing into it the filth she has collected during her walk, but, with the self-sacrificing humanity of her sex, while she risks her own health she benefits the community and obeys the injunction: *Salus populi suprema lex esto*. Many ladies, to be sure, hold up their skirts while walking, but this the Congress might have deprecated, as it is ungraceful, deprives the wearer of the proper use of one hand, besides preventing her from contributing to the sanitary condition of the street.

The one point which seemed to command the universal assent of the Congress was that consumption is a contagious malady, and that it is only communicated from one person to another by means of the microbes infesting tuberculous patients. The older doctrine of the hereditary nature of the disease was hardly alluded to, and then only to be scouted as false and out of date. But is the newer and up-to-date doctrine of the contagious nature of tuberculosis true? Not necessarily because it is held by the great majority of the profession. I have not been engaged for more than threescore years in the practice of medicine without witnessing the rise and fall of numerous medical theories and modes of practice. They were promulgated by some more or less eminent men, hailed for awhile as incontrovertible truth, and, after enjoying an immense but transient popularity, were inevitably consigned to the limbo of oblivion, to be succeeded by some equally popular and equally evanescent theories and practices. Brown's doctrine of the sthenic and asthenic nature of all diseases, with its corresponding practice of stimulants and depressants, was hardly extinct when I began my medical studies. Cullen's rival doctrine of spasm was only still held by a few of his ancient disciples. The theories and practices of Broussais, Bouillaud, Andral, Alison, Tod, and many others were hailed with enthusiasm, and, after enjoying an ephemeral renown, were relegated to the dust-bin of discarded fallacies. The medical profession is the most credulous of learned bodies. Some of the members of this very Congress furnished conspicuous examples of the rise and fall of medical fads. It is not so very long ago since Lord Lister's spray took the whole surgical world by storm, and in Germany surgeons were even prosecuted and fined for refusing to employ it; but after a time its noble author confessed that he was ashamed of ever having proposed it. The hero of this very Congress, Professor Koch, is "damned to everlasting fame" by his disastrous

invention of tuberculin injections for the cure of tuberculosis, which, vouched for by our medical peer, created for a while a furore of enthusiasm throughout the civilised world, until experience showed that the injections killed but did not cure.

Bacteriology is the latest medical fad. It still holds the field, and though it begins to show some symptoms of its inevitable doom, it will be hard to kill, as it has unfortunately obtained possession of chairs and professor-ships in all our medical schools, the occupants of which will make a determined effort to maintain their position as the exponents of the only true pathology. *Beati possidentes!* But there are not wanting signs in the medical world that the reign of the microbe is threatened. Doctors are beginning to ask, What advantage to medical treatment has resulted from all this fuss about microscopical fungi? Has it enabled us to cure better than before? Has it not, with its antitoxin and its war against hypothetical pathogenic bacteria, inflicted a serious blow on the study of rational therapeutics, and does it not tend to discourage the cultivation of real pathology? Is there any certainty about the deductions and observations of the bacteriological experts? This congress gives us specimens of bacteriological uncertainty. Thus Koch and others declare that the sputum of consumptives, swarming with bacilli, ejected on to the floor or the street dries and is converted into dust, which dust, with its dried but living bacilli, being mingled with the atmospheric air is inhaled into the lungs of healthy persons and thus gives them consumption. On the other hand, Professor Brouardel says that the phthisical sputum, "thrown into dry and well-lighted surroundings, exposed to the rays of the sun, will soon lose all its dangerous properties; but if it remains in damp and dark surroundings it will maintain its activity for a long time." Other experts have told us over and over again that as long as the bacilli remain moist they cannot be raised in the atmosphere, and consequently cannot be inhaled. Another conspicuous instance of the disagreement among bacteriological cognoscenti is afforded by Koch's declaration that bovine tubercle bacilli are quite different from the human species, and incapable of affecting man. Dr. Marsden said by this assertion "Dr. Koch had thrown a bomb in their midst," and no doubt this was true—figuratively, of course, I mean—for most of the speakers had come primed with the idea that bovine and human tubercle bacilli were identical, and most of them were full of schemes to prevent the access of bovine bacilli in milk and meat. Such being the differences and contradictions among the very elect, is it too much to hope that ere long the contagious or sputum origin of consumption will pass away and be forgotten? Is there any evidence whatever that this so-called bacillus tuberculosis ever gave any healthy person phthisis? In other words, has it ever been satisfactorily proved that phthisis is communicable from "man to man," as the resolution of the Congress says, or, as we may say, from one person to another? As for experiments with guinea-pigs, the favourite subjects of physiological researches, they are not convincing, as these animals get ill and die from many things

that do not affect man. They seem to be equally sensitive to bovine and human tubercle bacilli. It is difficult to understand why bacteriologists are so fond of experimenting on guinea-pigs, and inferring from what they see occurs in them how things would act on man. Perhaps the name suggests to a doctor a sort of family relationship with his patients, who are a kind of guinea-pig to the doctor, or he to them. But seriously, the guinea-pig is so different anatomically and physiologically from man, that it is utterly unsuited to such researches. There is absolutely no evidence to show the communication of phthisis from one person to another. Were phthisis contagious, as asserted and believed by all the Congress, surely we should see frequent instances of this contagion in the married state. But it is extremely rare. Dr. Jousset gives, from his own experience during fifty years' practice, 134 cases of phthisis among married couples. In 77 cases the wives were affected with and died of phthisis, while the husbands remained unaffected. In 51 cases the husbands died of phthisis, while the wives remained healthy. In the remaining 6 cases both husband and wife died of phthisis, but in 3 of these cases the partner secondarily attacked had a hereditary predisposition to phthisis, one or both parents having died of tuberculosis. It is not proved that in the remaining 3 cases it was infection from the phthisical spouse which caused the disease in the other partner. So we may say that there is absolutely no satisfactory proof of phthisis being communicated by conjugal cohabitation. Professor Knopf, of New York, the same who denounced long skirts as insanitary, said that "infection from kissing was not unknown." Kissing, I am told, is pretty generally practised by married couples; were it apt to communicate phthisis, surely the statistics of matrimony would reveal a larger percentage of the disease being communicated to the healthy partner by the phthisical spouse. I do not think smart ladies and amorous couples will care a button for Dr. Knopf and his denunciation of long skirts and kissing. Were consumption a contagious disease we should surely find it attacking the medical attendants and nurses of consumption hospitals and sanatoria. But all authorities report that those in the service of these establishments are singularly free from the disease, though they may be said to live in an atmosphere charged with hosts of the dreaded bacillus. That a number of persons living in the same insanitary conditions of overcrowding, insufficient and often unwholesome food, dirt, squalor, and dissipation should fall victims to phthisis does not prove that they infected one another; their unhygienic environment is sufficient to account for their falling a prey to the disease. When the disease attacks any person, caused either by unwholesome surroundings or hereditary taint, there are always plenty of bacilli about which find their congenial soil in the diseased lungs and scrofulous glands where they can increase and multiply according to their nature. That phthisis and other tuberculous maladies swarm with bacilli is no proof that the bacilli cause the disease. As well allege that the mites and mould of cheese cause the decay of the cheese. They are not found and probably could not exist in fresh cheese, but as their

germs are everywhere about they settle on the cheese when its disease or decay provides them with an appropriate soil. The idea seems to be gaining ground, even among bacteriologists, that it is not the bacteria that cause the disease, but only the congenial diseased soil that attracts the bacteria; that the bacteria cannot find sustenance in a healthy tissue, because it affords no medium in which they can live. No doubt the bacteria, by their extreme fecundity, have a share in the destruction of the tissues they invade, but if they were capable of multiplication in healthy tissues, once present they would continue until they had destroyed the whole body, and bacterial diseases would be incurable diseases. But even consumption is curable in almost all stages by appropriate hygienic conditions, plenty of fresh, pure air, and even by medicines. By these means the diseased structures are rendered healthy, therefore an unsuitable soil for the bacteria, so it is not by destroying the bacteria but by depriving them of their appropriate pabulum that the bacteria disappear. Grancher says: "Tuberculosis is the most easily cured of chronic diseases." This may be rather too favourable a way of expressing it, but every physician knows that cases of phthisis have been cured in almost every stage of the disease. Many diseases of the most contagious character, such as scarlatina, measles, mumps, whooping-cough, small-pox, rubies, have no specific bacteria, and it is highly probable that the contagious virus of bacterial diseases is quite independent of bacteria, though it may be that their bacteria are capable of conveying the infection virus, like the fomites of non-bacterial contagious diseases.

The establishment of sanatoria for consumptives, where the patients could obtain all the hygienic influences required for the cure of their disease, occupied the attention of the Congress. But it is evident that sanatoria, even on a very extensive scale, could reach but a small proportion of the consumptive. Few patients in the earlier stages of the disease, where these establishments would be most useful, would submit to the lengthened confinement required for their successful treatment. Many consumptives are quite able to go about and carry on their business, so as to contribute to the support of their families, and they could not afford to remain idle for the months and even years required for their treatment in sanatoria. So that these institutions would be only available for the few who had plenty of leisure and had none dependent on their labour. The mortality in England from phthisis in adults has diminished during the last fifty years by 45 per cent., owing to the improvements effected in the housing and sanitary conditions of the population. As these sanitary conditions still leave much to be desired, it is absolutely certain that a still greater reduction in the mortality from phthisis will ensue from continued improvement in this direction. It is to the improved sanitary conditions of the community, and not to precautions against innocuous milk and beef, and supplying patients with pocket spittoons, that we must look for a diminution of the mortality from phthisis.

It has recently been shown by a French physician, that the enormous

increase of alcohol consumption in France, owing to the legislation that allows every one to manufacture as much alcohol as he likes without paying any excise duty (see Debove on *Alcoholism* in *H. W.*, March, 1899), has been attended by a corresponding increase of consumption, so we may add alcoholism to the exciting causes of phthisis, and the spread of temperance to the preventive measures. As Dr. Brouardel said in his Address: "Alcoholism is the most potent factor in propagating tuberculosis."

On the whole, it cannot be said that the great international Congress on Tuberculosis has done or even suggested much for the extirpation of the disease. Their views about the dangers of sputum and the advisability of establishing sanatoria were already well known, and there were no new hints given as to how the dangers were to be guarded against or the sanatoria established. The first address, that by Dr. Koch, contained the only novel and useful thing in the whole meeting, and that was but a negative affair. I allude to his demonstration of the non-identity of the bovine and human tubercle bacillus, and the uselessness of taking precautions against the access of the cattle bacillus to the human body. Those who have hitherto been racked by anxiety lest they themselves or their families should get consumption from tuberculosis milk or beef, and, by the advice of their doctors generally, have taken immense pains to keep these necessary articles of food free from the supposed dangerous bacillus, will now be delighted to learn that they may drink their milk unboiled and eat their beef cooked ever so lightly, as they used to do a few years back, before the bacillus scare was invented. We can readily forgive Koch for his grand tuberculin fiasco, if he succeeds in persuading people that there is no fear of catching consumption from their food. The downfall of the sputum delusion will assuredly soon follow, and pocket-spittoons will join Lister's spray-machines into the lumber-room of useless inventions.—*Homeopathic World*, September 2, 1901.

THE FALLACY OF THE PERMANGANATE DISINFECTION OF WELLS (HANKIN'S METHOD).

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Rationale of Hankin's Method.

According to Hankin, this process depends on the fact that potassium permanganate, by destroying a portion of the organic pabulum, indirectly brings about a diminution in the number of cholera vibrios. This reduction is said to last for "several days." About 2 or 3 ozs. of the permanganate are said to suffice for a single well.

Conditions of Permanganate Disinfection.

It is well known that no disinfectant can act simultaneously and in sufficient proportion upon all the organisms to which it is applied; and hence the agent, if it is to be of any use, should be somewhat permanent in action. Now, the permanganate, acting as a mere oxidiser, is soon used up—unless, of course, it is employed in abnormally large quantities; and

it can only act thus if the water is acid and heated to a certain temperature—two essential conditions which are entirely ignored by Hankin. The water of Indian wells, on the other hand, is notoriously alkaline, although the necessary warmth may be supplied in hot weather.

And its Limitations.

But, even granting that the permanganate does act in spite of these conditions, it is only a very small proportion of the organic matter which is thus actually destroyed. This will be obvious when we consider that the amount of the agent used is so small, that there are other substances besides the organic matter—for example, nitrites and sulphites—which will reduce the permanganate, and, lastly, that the oxidisable organic matter bears an inconstant ratio to the total organic matter.

Permanganate Harmless to Cholera Vibrios.

The large amount of organic matter present in Indian wells is more than sufficient pabulum for cholera vibrios, and a certain proportion of it can easily be spared. Besides, the permanganate (if at all) rather kills or "paralyses," the lower saprophytes, and the removal of their inhibitory influence enables the vibrios to flourish still more luxuriantly. The reduction in the number of cholera organisms observed by Hankin, as we shall presently see, is due to a totally different set of causes, and cannot be ascribed to the influence of the permanganate.

Difficulties in Cholera Experiments.

But if the chemistry of Hankin's method is unsatisfactory, its bacteriology is still more so. It would be interesting to inquire as to which are the cholera vibrios, and what differential tests he employed to distinguish between the true and false varieties. Pfeiffer's test is by no means absolute, and it has been shown that pigeons can often be inoculated with true cholera vibrios as readily as with Metchnikoff's vibrio. Again, Rumpell has shown that cholera vibrios after being passed through pigeons and cultivated in artificial media develop phosphorescence. There is, indeed, no standard test on which we can rely for the diagnosis of the true cholera organism.

The Guinea-pig Fallacy Again.

But Hankin relies for his experiments on guinea-pigs—the least satisfactory and most fallacious of all tests. For, as has been maintained by Klein and others, death in these cases is induced not so much by the cholera vibrios as by the other means adopted, and that other bacilli may be substituted to bring about the same result. Indeed, according to Virchow, any organism is capable, under certain circumstances, of causing death with symptoms and pathological changes more or less like cholera.

Diminution of Vibrios not due to Permanganate.

The diminution in the number of vibrios observed by Hankin after the application of the permanganate is due to other causes, and has no relationship to this agent. The organisms die chiefly owing to their delicate nature. According to Krause, cholera vibrios, when introduced in the well water of Munich, disappeared on the second day. Then the agitation of water (induced by the working of the well) brings them more and more

under the lethal influence of fresh air and sunshine. The well is continuously worked, and the water pumped out is as regularly thrown back into the well. Thus a continuous agitation is kept up in the well water, which, however, is hardly sufficient to dislodge the organisms from the walls and bottom of the well.

Defective Technique.

Indeed, it is in the deeper layers of the water and in the slime at the bottom where bacteria mostly abound. Russell made a series of researches on the micro-organisms of the Gulf of Naples and of the mud at the bottom of this gulf, collected at various depths up to 1,100 metres. At a depth of 50 metres the water contained 121 bacteria per c. cm., and the mud from the bottom 245,000; at 100 metres the water contained 10 and the mud 200,000 per c. cm.; at 500 metres the water contained 22 and the mud 125,000 per c. cm.; at 1100 metres the mud contained 24000. A method of well-disinfection which leaves out of count its walls and the slime at the bottom cannot be too severely condemned.

Diminished Duration of Cholera Outbreaks due to Causes other than Permanganate.

It has been urged that the permanganate treatment has shortened the average duration of cholera outbreaks. But the vagaries of these epidemics are notorious; they vary with season, soil, the species of vibrio, and the condition (intestinal and bodily) of the human host. And therefore it is only reasonable to assume that the two facts (treatment of wells and the diminished duration of outbreaks) are by no means necessarily related to each other as cause and effect.

The apparently good results are, no doubt, due to the stoppage of the particular water supply. Previous epidemics have taught the people a lesson, and they now take increased personal care and attend to sanitation. A good many doubtless boil their water before use. And the source of infection being thus more or less controlled, the epidemic might cease owing to "passage," that is, to gradual attenuation of the virus brought about by continuous transmission from man to man (to "passage," indeed, is due the relatively low mortality of endemic areas, and the diminishing death-rate at the "tail-end" of an epidemic in non-endemic parts).

Conclusion.

To summarise the foregoing observations, it will be noticed that potassium permanganate can only act under certain conditions, and even then is not continuous in action. The permanganate must first expend itself in oxidising nitrites and organic matter before attacking organisms, which are so resistant to it that Koch states that it is applicable only in concentrated solutions (5 per cent.). For practical purposes, then, it can only be employed as a deodorant.

The disinfection of wells is based on the assumption that there is a distinct relationship between the chemical composition of water and the number of microbes contained in it. But it is highly probable that no such relationship exists in Nature. Using the oxygen derived from the permanganate as a text, Fischer found in one case 7.4 parts per 100,000 of oxygen absorbed with 800 bacteria present; and in another case only 0.5 part per 100,000 of oxygen absorbed with 360,000 bacteria present.

But while Hankin's method is fallacious in theory and defective in technique, it is impossible in its practical application. In a community where there are numerous sources of water supply (each house often has its own well), such a treatment of wells, entailing a very close supervision, is bound to fail. And, practically speaking, the incidental vanishing of the vibrios by Hankin's method cannot be so reliable as their actual destruction by boiling.

Again, there is not a single reliable experiment in support of this method --indeed, all the tests point in the contrary direction. And the apparently

good results following treatment by the permanganate can be explained by other and better means. In so far as the actual destruction of microbes is concerned, we can only regard this agent as having little or no influence at all. But, if any further proof is required on this matter, it is furnished by the fact that it has absolutely failed in practice, after a prolonged trial. As the Sanitary Commissioner to the Government of India remarks, permanganate disinfection "does not much or materially diminish the risk of cholera infection in epidemic times."

It is, therefore, submitted that the pumping of a well, with a couple of ounces of potassium permanganate thrown in (and such, in brief is Hankin's method) does not bring about any profound changes in the chemical or biological constituents of well water. Permanganate neither diminishes the number of vibrios nor shortens cholera outbreaks, and cannot therefore be credited with the beneficent rôle ascribed to it by Hankin.—*Brit. Med. Journ.*, August 17, 1901.

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THE DIFFICULTIES OF MEDICINE.

WE would draw the attention of our readers to Dr. Goodhart's Address in Medicine delivered at the last (69th) Annual Meeting of the British Medical Association. It is the most thoughtful, philosophical, and, what is more to its credit, truthful address that has ever been delivered before this body, the largest medical corporation in the world. It shows that the author is not only an observant but an honest physician, who takes neither an optimistic nor a pessimistic view of the position of medicine at the present day, but gives his impressions of its weakness or its strength, freely and fearlessly, as he finds it. It is a pity that such a member of our profession has not had the advantage of the latest light that has illuminated its darkest recess—therapeutics. For if he had, he would have seen that the difficulties, which he has so truthfully pointed out, have been very considerably removed, and would be nearly so if only the profession would honestly acknowledge and energetically act upon the law of healing by drugs which was discovered so long ago as the very beginning of the last century, but which the profession not only has been trying its utmost to ignore, but to pursue with the most relentless and culpable persecution those of its members who have the courage and honesty to avow their faith in it.

The object of medicine being the repair or removal of the

disorders of the living organism, its difficulties must be in proportion to the complexity of that organism. The human organism is the most complex in the world, and accordingly medicine, as concerning human beings, is the most difficult of all sciences and arts. "It is clear," says Goodhart, "without my laboring the point, that a body so composite as ours is so very delicate a machine that there must be many and many a case presented to us where we do not, and many even where we cannot, know what is the matter, and taking even the most favorable view of the progress of scientific discovery it is probable that this will be so till time shall be no longer. We cannot know because the intricacy of the machine hinders one getting at the real facts. We cannot know because even when we have got at the facts we cannot be sure that the remedies used will get at the disease."

This is not, however, the only difficulty. If all human beings were exactly alike, medicine once established, would remain perfect for ever. But notwithstanding a general resemblance which constitutes all men the same species, there are countless differences which constitute each human being a separate individual. In the treatment of disease the personal equation of each patient must, therefore, be taken into account in the selection of the remedy. Dr. Goodhart has presented this difficulty in his own way as follows: "When Mrs. Smith asked her doctor why it was that a particular pain possessed her, he is said to have replied with ready wit and no less truth, 'Madam, it is because you are Mrs. Smith.' And the lady no doubt thought her doctor an amusing man, but she had not a glimmer of the great truth that had been administered in such an excellent coating. But, indeed, 'that because you are Mrs. Smith' constitutes one of, if not the most, insuperable of the difficulties to framing any system of precise medicine. . . . As long as the world lasts, this variability of the living force, this individuality, will prevent the attainment of the popular desire—a cut and dried remedy—not only for every disease—that is no use to Dick when the remedy only touches Tom's variety; no, we want a remedy for every disease, and for every variety of it, as met with in the young and in the old, in the otherwise healthy and unhealthy, under the specious garb of mildness, or the pronounced type of malignity."

Here is a misconception, a fundamental erroneous view of

medicine which must be considered and corrected, because it is not only at the bottom of all the difficulties of our science and art, but it has magnified those difficulties beyond all proportion. If we have to find out a remedy for every disease and for every variety of it, then there would be no limit to the number of remedies, and the task of finding them out would be hopeless. But fortunately this is not the case. Each variety of disease, each individual case, may and often does require a remedy different from what other varieties and other cases may and do require, but even the same remedy may be applicable to different varieties and different cases if we only knew how to apply them. To be able to know how to make this application, we must know beforehand how the remedial agents affect or act upon the organism, and then we must find out if there is a definite relationship between the affection of the organism as manifested in disease and the affection of the organism as produced by drugs. If there is a definite relationship then that must be our guide in the selection of the remedy in a particular case. The only possible relationships conceivable are those of similarity, of contrariety, and of difference. The drug affection may be similar to, or contrary to, or different from, the disease affection. Experience only can say which of these would serve as the best guide in the treatment of disease.

In the beginning of the last century Hahnemann showed that the relationship of similarity between drug-disease and natural disease is the best guide in the treatment of the latter, which the profession have been seeking from the dawn of the healing art, but have failed to find for want of proper methods to do it. Hinderbound by prejudice, and puffed up with the conceit of ignorance, the profession have systematically set its face against the greatest and the most beneficent discovery that has ever been made, and the result is, as Dr. Goodhart bitterly laments, "the number of new drugs for all sorts of maladies, imaginary and real, that are being daily launched upon us is bewildering in the extreme." Who are responsible for this deplorable state of things? Who but those who have been plying their profession without the polestar of a law to guide them, and in their vain endeavours to find out a separate remedial agent for every ailment, have at last found their occupation gone from them to the pharmacutists?

If the orthodox school had been in possession of a law of healing by drugs, Dr. Goodhart would not have uttered the following words of anguish and despondency: "*All treatment by drugs is more or less of an experiment, and it is, indeed, in this fact that the enormous number of new drugs daily poured upon us finds its justification. . . . A chemist's shop is indeed a source of wonder and dismay to me, and I could indeed wish we were less the prey of the manufacturing chemist. . . . Who does not even now remember the boom of the antipyretics? A few of them have remained to us for other purposes; but as antipyretics, who gives them now?*" There is, we admit, an experimental stage for all drugs, but that is when they are being proved on the healthy; then comes the stage of verification when a case or two are for the first time treated by them; and after that the practitioner is in possession of a positive guide for the treatment of all cases which present symptoms similar to those of the drugs.

But apart from this inherent difficulty, the difficulty of the discovery of drugs, of their relationship to diseases, and of the law of healing involved therein, there are other difficulties which may be called adventitious, and which arise strangely enough from patients no less than from doctors, and these difficulties aggravate each other. On the part of patients difficulties arise from the growing sensitiveness about health which is coming on with advancing civilization, and from a too great curiosity about the causes and nature of diseases, both of which difficulties lead to impatience which stands in the way of many a recovery otherwise attainable. The hurry and worry of present modes of living bring about pains and aches and positive disease more than in the past when life was simpler and more primitive, and accordingly "we are crying more loudly for a cure for every disease, whether it be one that is commencing and curable or so advanced that—as, say, in a bad case of phthisis—the greater part of an organ is practically destroyed, and a restoration to its health is impossible."

With the advance and spread of education knowledge has certainly increased, but it is not always true and healthy knowledge, and when this is the case conceit and morbid curiosity follow in its train. In matters technical, which medicine pre-eminently is, this is highly injurious and proves the truth of the adage—"a

little learning is a dangerous thing." It is dangerous to the party most concerned, the patient. "The sick man," says Dr. Goodhart, "wants to know too much. He wants to know what is the matter with him when it is not possible to tell him; moreover he will have an answer, and if not he thinks the doctor an ignoramus and calls in someone else." We should add it is not only not possible, but it is not always right, to tell him what the matter is with him.

Notwithstanding the rapid strides with which anatomy, physiology, and pathology have advanced and are advancing Dr. Goodhart is perfectly right when he says, "that in this complex body of ours there must be hundreds of little accommodations between the various organs and parts that it is impossible to explain or be sure about; that there must be numberless conditions that will bear several interpretations; numberless others that cannot be labelled at all; numberless states that look grave, and yet if we only could peer a little into the future, get just one glance behind the veil, we should see, were just on the turn towards health, and no matter what drug was given would do well—the cradle cases of many an ignorant man's reputation; and numberless cases that seem to be doing well that are just on the verge of a catastrophe, and these the grave of many a competent man's success." Hence the difficulty of giving a name to a disease which the patient and his friends so much hanker after. "Any fool can give a name to a disease, if, as is too often the case, the letter satisfieth. But what if the name is wrong, and the name determines an important line of treatment; what if the letter killeth?"

Counterpart of the over sensitiveness about health on the part of the patient is the morbid readiness to detect disease on the part of the doctor. The standard of health is made too severe and fixed at a rigid line, forgetting the often-observed fact that "a good state of health is compatible with numberless slight and even sometimes considerable departures from normal." The *vis medicatrix naturæ* is ignored,—that wise provision inherent in the living organism whereby deviations from healthy functions are rectified and even actual injuries to healthy parts are repaired. Even our own Hahnemann, who was such a lover of mighty Nature and who, following in her foot-steps, discovered the law of healing, ignored the existence of this provision in the case of chronic diseases. We do not say that this provision is all-sufficient. We do not say that it requires no interference. But we maintain that the interference with it by the doctor is often too frequent and too violent, that where the organism requires a simple change of diet and the proper arrangement of the hygienic environment, we often lash and torture it with drugs. Let not members of the new school console themselves with the idea that

because *their* drugs are infinitesimal quantities they are impotent for evil. Our contention is, and it is based upon innumerable instances, that if they are really potent for good when properly administered, they must be and are equally potent for evil when wrongly administered.

Of the difficulties which proceed from the doctor the most formidable because the most injurious are those of routine and fashion. Dr. Goodhart has administered a good rebuke to those who allow themselves to become willing slaves to such practice. Out of numbers now ruling the profession he has cited only three, the open air treatment of consumption, medical antisepsis, and the bromide treatment of epilepsy. Of the first he prophesies that "in proportion to the exaggerated hope will come the bitterness of disappointment to the sick, and the discredit to us." On the second he is more severe. "It was very meet and right that the comparative inefficacy of such nauseous medicaments should drive us back into the arms of the great original antiseptic, fresh air." As regards the third he says "it often does a great deal of harm, and I am by no means certain that it does any equivalent good." We should have liked to know what he thinks of the toxins and the antitoxins and of their hypodermic injections in every disease supposed to be of bacterial origin both for prophylactic and therapeutic purposes. Are we to infer from his silence on the subject that he has not himself recovered yet from the prevailing mania?

The difficulties of medicine, great as they are, are considerably lessened if we succeed in inspiring hope in the breasts of our patients. "Of all the unnatural conditions of which medicine takes count, perhaps none is so much so as life without hope. When hope flies at the window death is lurking at the door, but in the good providence of God man cannot quench it, and I beseech you that you never try." The doctor, however, often does quench it not only by pronouncing a case hopeless, but not unfrequently by announcing that death is near at hand. In doing this he commits not only a blunder but a sin. He deprives the patient of the best stimulus for sustaining life that he could possibly have. No man has a right to shorten another man's life by even one single moment. We know of a case which sent at the time and does send still a thrill of horror into our heart, a case of a healthy man meeting his death on the third day after consulting a renowned Kaviraj of this city who to display his knowledge and skill said to him he would live only three days. The man, to all appearances in the best of health, tottered at the fatal announcement, and having faith in the Kaviraj, left home to live on the banks of the holy Ganga close by, gradually became worse, and died as predicted!

PUNSAVANA ; OR THE CAUSING THE BIRTH OF A MALE CHILD.

BY DR. SURENDRA NATH GOSWAMI, B.A., L.M.S.,

(*Concluded from Vol. xx, No. 10, p. 410.*)

The heart is the only source from which the whole body is supplied with energy ; so, to keep it always well-supplied with an abundance of combustible substance forms, therefore, the most important thing in the animal economy. The work expended by the heart of a man in twenty four hours amounts to not less than 627,768 foot-pounds ; "an amount of work which is equivalent to nearly 46 pound-units of heat, and which represents the energy evolved as heat in the complete combustion of about 686 grains of carbon." These calculations enable one to form some idea of the magnitude of the combustible processes which have their seat in the muscular substance of the heart ; to a less degree the same is the case with all the other muscles which are engaged in so-called *Opus vitale*, that is, in the performance of internal work absolutely essential to the continuance of the life of the organism."

Now to determine the origin of this combustible substance in the animal economy will be our next attempt. We find that other tissues and organs, besides the liver, have been found to contain glycogen ; for example, muscles contain some glycogen which diminishes during muscular activity, while it has been detected in the tissues of embryos and of young animals, as well as in newly formed pathological growths.

It is therefore supposed that the activity of the heart, as well as the development of the foetus both depend to a large extent upon a common factor which is called "Glycogen" in Western, and "Oja" in Eastern science.

The extracts which we give below from Charaka and Dallana will show fully what reasons we have in considering glycogen and oja side by side, as two different names of one and the same substance. If there exists any doubt as to their identity, it will almost clear away, as soon as we take the ætiology of glycosuria into account.

It appears from the above still more vividly to our mind, that our countrymen were also able to discover, like Dr. Pavy,

the importance of fat and sugar in the animal economy, as well as the mode in which they can be elaborated from one common principle (76-78). A comparative study of the two systems of medical science, Indian and European, has led us to arrive at this conclusion ; if we therefore do not incline to identify *oja* with albumen, as it has been done by some modern Indian commentators, we have reasons to believe that the aforesaid extracts have not as yet received sufficient consideration from them, as forming the nutritive basis of the procreative elements ; in short, the subject has hitherto been passed off, or, at best, placed in the background, from want of attention on the part of those whose business it was to investigate into the truths of science. To hold that *oja* is kept in deposit in the heart, as a reserved food-material, for the maintenance of its own work as well as for the production of the germinal seeds, is to admit that efficiency of reproduction depends entirely upon the efficiency of this important substance in the body. To maintain it in its integrity is to adopt that course of food in which the nitrogenous elements predominate. It serves the double purpose of supplying nutrition to the body without causing much

76. गुरुस्निग्धान्मलवणान्यतिमात्रं समश्नताम् ।

नवमसञ्च पानञ्च निःशालस्य सुखानिच ॥

त्यक्तव्यायामचिन्तानां संशोधनमकुर्वता ।

स्नेह्या पित्तञ्च भेदश्च मांसञ्चातिप्रवर्त्तते ॥

तैरावृतगतिं वायुरोजश्चादाय गच्छति ।

यदा वस्तिं तदा कृच्छ्रो मधुपेहः प्रवर्त्तते ॥ चरकः

77. इतं यथा कृत्स्नं चौरक्षेहः

तथैव तेजोऽपि कृत्स्नं धातुक्षेहः ॥ उल्लानमिश्रः

76. Those who partake of heavy and cooling food abounding in acids and salts, of new rice, and beverage, or constantly enjoy sleep and luxuries, or neglect exercise of body and mind, or habitually refrain from the use of corrective medicines, help to accumulate in their bodies phlegm, bile, fat and flesh, and these interfere with the function of Vāyu, which causes *oja* to be displaced from its proper place down into the bladder and produce glycosuria.

77. As ghee pervades the whole body of the milk, so *oja* pervades all the tissues of the body.

accumulation of fat in the system and preventing at the same time the appearance of sugar in the urine. As medicinal substances are sometimes found injurious and productive of unhappy re-actions, precautions ought to be taken to avoid them as much as possible (having recourse only to such as are external applications) and to substitute in their place food abounding in vegetable proteids and in animal casein, or in other words a mixed diet as mentioned before.

78. तेजोऽप्याग्नेयं क्रमशः पच्यमानानां

धातुनामभिनिवृत्तमलरस्यं स्नेहजातं वसाख्यं

स्त्रीनां विशेषतो भवति तेन सार्द्धं सौकुमार्यं भवति ।

उल्लसनिम्नः

78. Teja too is combustibile ; in the course of tissue-combustion, the excess quantity of it gets deposited especially in the female body as fat which produces softness and elegance.

CHAPTER VII.

THE PRACTICE OF PUNSAVANA, AND WHAT IT MEANS.

We have so long described the preparatory measures that are adopted for the production of male births. Now we will speak of the actual rites of *Punsavana* which is a word known to every Hindu household. It means (पुं male and सवन birth.) causing the birth of a male child.

The first month of gestation is the proper time during which the rites of Punsavana should be performed. It will be of no use after the organs of generation in the embryo have taken a visible form. The second month is therefore the utmost limit beyond which sexual metamorphosis cannot be produced artificially.

The drugs that are in great repute as promoters of conception include amongst their number the celebrated mandrake (जङ्गलामूल) and *Barlera cristata*. (फिक्करी)

The substances used for the purpose as eye drops and stimulants to the olfactory or other sensory nerves are somewhat mysterious in their action. Although we cannot sufficiently explain their modes of action, we are at least sure that they produce certain impressions upon the mind of the mother that leads to the formation of one particular sex. For there are numerous instances on record in which the mental condition of the

mother on or before the date of conception or soon after acted as a powerful determinator of sex. Girou has narrated in his *Repertoire* anecdotes of interesting details which corroborate strongly the fact of mental condition of the mother as actually influencing the future sex of the child.

Thus we find that the Hindu doctrines of Bramhacharyya, of scanty meals, of improved metabolism, of the mental condition of the parents, of nitrogenous food, of late fertilization, nearly give the list of causes that are regarded by European teachers as productive of sexual metamorphosis. But the theory of ebb and flow of the uterine discharge on alternate days and its influence over the evolution of sex is a new idea founded as we have already seen upon a true scientific observation, Dr. Morello's theory of concentrated 'semen' and Schroeder's experiments upon 24 intelligent women, giving it an impartial support.

Moreover, if such an ebb and flow is really found to exist in nature, it will be a matter of pride to us that Indian investigation in the field of Embryology is not less important than it has been in those of astronomy and philosophy.

In the middle of the nineteenth century we find that in relation to the subject of population, the proportion of males and females in India was in the ratio of 100 : 94. Whereas in England the females outnumbered the males in the proportion of 105 to 100. In the two great provinces of Bengal and Madras the excess of females was not greater than 1 per cent. But in Oudh the excess of males was 9 per cent., in Bombay 8 per cent., in the North-West Provinces 12 per cent. In one tribe of the Meerat district only 8 girls under 12 were found to 80 boys. It has been said that "this great excess of males can only be assigned to two causes : (1) defective registration of females especially of girls, and (2) female infanticide in former times and carelessness of infant female life at the present day."

Instead of making any remark upon the reasons put forth for this great disproportion of sex we will simply point out to our readers that in the most anglicized provinces of Bengal and Madras where no Hindu practice is strictly observed, particularly the practice of Punsavana, the difference between the number of males and females is one per cent. But in Oudh and Bombay, the North-West provinces and Oudh, and the Punjab where the

ancient manners and customs are observed with scrupulous jealousy to prevent too early union of the sexes, the excess of males ranges from 7 as high as to 16 per cent. Female infanticide may have some share in the production of this great disproportion, but it is possible this may be due, in these parts of the country, to late fertilization the opposite of which, we are afraid, is probably a common occurrence in civilized England. An excess of females by 5 per cent. is not a strange occurrence in a country where there is no restriction as to sexual intercourse, and consequently early fertilization is the rule. But in those parts of India where social customs are in strong opposition to early fertilization an excess of males by 7 to as high as 16 per cent is not an unnatural phenomenon, and may be regarded as a beneficial effect of late fertilization. The returns of the census of the present year (1901) and of 1891 shew as usual an increase of female birth in the Presidency of Madras, while in the Punjab and N.-W. Provinces the increment is found on the side of the male population. In the present administrative condition of the country as female infanticide is almost a thing of the past, any disproportion in favour of the male births should therefore be ascribed to some natural cause such as late fertilization rather than to female infanticide and careless birth-registration. To pursue an anglicized course of life is certainly against the principle of the Hindu Shastras. But if we still begin to think orientally, cook orientally, eat oriently, drink orientally, in short if we cultivate orientalism in every phase of our private life as prescribed in Charaka and Susruta, we shall soon find that we have lost very little by pursuing for so long the irregular method of the West.

REVIEW.

Curability of Tumors by Medicines. By J. Compton Burnett, M.D. Second Edition Revised. Boericke & Tafel, Philadelphia, 1901.

There is a melancholy interest attaching to this edition of Dr. Burnett's book. It was published just before his lamented death. Though not his last work, it was the last which would seem to have had the advantage of his revision. To what extent the revision was done we cannot say as we cannot lay our hands upon our copy of the first edition at the present moment, and the author himself does not say anything about revision in the preface to this the second American edition. So we take it that this edition differs but little from the first.

As we see we had not noticed the first edition in our Journal we accord our sincere thanks to Messrs Boericke & Tafel for having given us an opportunity of reviewing this work as if it had just issued from the press.

A true follower of Hahnemann Dr. Burnett was a physician *par excellence*. He kept before his eye the Master's definition—"the physician's high and *only* mission is to restore the sick to health, to cure as it is termed." He was possessed with the thorough conviction that *all* diseases are amenable to a cure if properly treated and in stages not too far advanced, and that even in the latter case they may be arrested in their progress and brought down to a lower level. "Physicians must be firm," says he, "and not allow themselves to be sneered or jeered away from their duty, but always *try to cure everything*; I do not mean pretend, but *try*." Under this conviction he pursued his calling and boldly, vigorously, and successfully attacked diseases which it was the monopoly of the surgeon to deal with by the knife. Cataract, fistula, tumors, which, according to old school practitioners, were not curable by medicines and which, in their eye, it would be charlatanry and even heresy to treat otherwise than by the knife, and which members of the new school would but timidly undertake to palliate, Dr. Burnett would not hesitate to treat with the hope of a cure, and the hope was often realized. "Many a clinical battle," says he with just pride, "I have fought and won, although the winning had been previously proved to be impossible."

It is a fact that, since the dawn of homœopathy, these and other incurable diseases were cured by homœopathic medicines long before Dr. Burnett came into the field. We have ourselves, even in the early days of our conversion, effected several cures of the above-mentioned diseases and succeeded in inspiring confidence in the system in the minds of many intelligent, dispassionate and impartial laymen, and have thus been an humble instrument in the spread of its cause in our country. But it must be acknowledged that such homœopathic cures of incurables, throughout the world, were solitary, scattered cases, not because homœopathy was altogether unequal to the task but chiefly because its practitioners did not seem to have been actuated by the necessary earnestness and zeal to command and secure the patience of patients. It has been Dr. Burnett's merit to have had in a pre-eminent degree this earnestness and zeal. He would not give up incurable cases but he would not undertake their treatment unless the patients submitted to undergo a *prolonged* treatment.

In the case of one of the so-called incurable diseases—the tumors—Dr. Burnett asks, “why is it that odd cases of tumor have been cured by remedies here and there for many years, notably by homœopathic practitioners, and yet the *systematic medication* for tumors is non-existent?” and answers, “I take it that the difficulties of the task, the complexities of the clinical problems to be solved, the incapacity of mankind to value and understand the work done, all tend to prevent it. And even still more, the venomous hatred of those who can *not*.” It is the third reason here assigned, the incapacity to appreciate the work to have to be done, which makes patients and their friends impatient of the length of time required to effect a cure, and urges them to rush headlong to certain death, as will be seen from the following narrative by the author: “I had cured a lady of a tiny tumor in her nose; she was pleased and grateful, and subsequently brought to me her niece on whom the doctors were about to operate for a small ovarian tumor; I cured this tumor also, but it occupied two years or thereabouts, and then aunt and niece both persuaded a friend to come to me. How long did I think it would take to cure her ovarian tumor? At least two years. I prefer the operation said she, that will only take six weeks. But it took less.—She died under or shortly after the operation The same aunt and niece persuaded a

lady from Chatham to come to me for a tumor of the breast; the lady's husband declined, as I thought it would take two years at the very least. She was successfully operated on, and thoroughly cured thereby of her mammary tumor; nine months later, she was again thoroughly cured of another tumor, by a perfectly successful operation; a few months thereafter, she was again successfully operated on for another tumor, and just as she was getting well—she died."

These and other similar cases justify the author in declaring "that a tumor is the product of the organism, and to be really cured the power to produce the same must be eliminated, got rid of; cutting it off merely rids the organism of the product, leaving the producing power where it was before, often the operative interference acting like pruning a vine; i.e., the tumor-producing power is increased, and the fatal issue is brought nearer." To express the same thing in other words, we should say that the tumor resides in the whole organism and not merely in the locality where it has become visible and tangible. Hence to really cure the patient we must remove it from the organism, that is, we must correct and remove the morbid tendency to it, which can be done, if at all, by medicines alone. "Cutting off an apple," as the author has significantly said, "does not cure an apple-tree of growing apples." The most sensible members of the old school are fully cognizant of this, but lacking drugs to effect the desired object and lacking a guide to find out suitable drugs they are obliged to have recourse to extirpation of the visible and tangible disease. With reference to cancers John Hunter, whom the author has quoted, wisely said, "No cure has yet been found, for what I call a cure is an alteration of the disposition and the effect of that disposition, and *not* the destruction of the cancerous parts." The same view is entertained by others in different words. Thus Dr. Creighton's theory of cancer is that it is an acquired habit of the tissues, "a habit that might be broken if we only knew." Virchow believes in the possibility of a process of *involution* in tumors tending to their disappearance, and hence he deprecates too great scepticism as regards their drug-therapeutics.

Is homœopathy any good in tumor curing? "Where are the healthy people to be had, who will eat drugs long enough to

grow tumours in their bodily parts?" asks Dr. Burnett, and answers, "clearly they are not forthcoming." He admits, "this has rendered homœopathy almost helpless in medicinal tumor-curing, but all the same," says he, "the chapter of accidents proves theoretically its absolute soundness, as does also pure symptomatic treatment without any regard to morbid anatomy at all. It has been proved that the homœopathic treatment of symptoms does sometimes result in the cure of the tumor causing such symptoms; thus Colocynth given for its pains has several times cured, not only such pains, but also the entire state, tumor and all. But here the difficulty of finding a remedy which shall be homœopathic not to the symptoms due to the presence of the tumors, but to their causation—that is to say, to those symptoms which constitute the disease-picture, and which lead up to, and end in the formation of tumors—this difficulty is in the present state of our knowledge, well-nigh insurmountable, hence I have learned to hang my hat on any peg I could find."

Ought we to blame Dr. Burnett for not sticking to the letter of Homœopathy when the materia medica pura is yet so incomplete, and when he could show such brilliant cures as are recorded in this book brought about by remedies which had never been properly or at all, proved. For those of our readers to whom the book is new, we give the following extracts from the first edition (1893) to show what the author's views on homœopathy were, which rightly understood would be found not to be in disagreement with those of Hahnemann himself, who did not hesitate to recommend massive doses of Camphor in the first stage of cholera, and mesmerism in other diseases:

"The practical question with me is this: is it not time to *widen* our definition of homœopathy in regard to the choice of the remedy, and, while leaving the choice of the remedy according to the totality of the symptoms in full force and dignity, draw into it *all* the aids that may lead to the right choice of the remedies; more particularly the natural history of the morbid processes themselves.

"In other words, I maintain that choosing the remedies according to the totality of the symptoms is only *one way of finding the right remedy*; and, moreover, sometimes totally inadequate.

"You may *find* the right remedy once in a way according to the old doctrine of signatures; and even though so found, it *acts homœopathically*; the way of choosing is poor and crude, but it is *a way*.

"You may find the right remedy by organ-testing after the manner of Paracelsus, and the remedy acts homœopathically although found that way.

"You may find the right remedy purely hypothetically, after the manner of Von Grauvogl and Schüssler, the mode of action remains the same, *i. e.*, homœopathic.

"You may use dynamized salt—*Natrum muriaticum*—to cure marine cachexia, sea-side neuralgia, sea-side headache, and the like, and still the action of the remedy is homœopathic. You prove, or assume as pure theory, the double and opposite actions of large and small doses of the same remedy, and treat chronic arsenicism with *Arsenicum*, and it is still homœopathy. You may theorize clinically as I do in "New Cure of Consumption," and reach no mean degree of success—further than ever before reached—and I maintain that it is homœopathy all the time.

"The fact is we need any and every way of finding the right remedy; the simple simile, the simple symptomatic simillimum, and the farthest reach of all—the pathologic simillimum; and I maintain that we are still well within the lines of the homœopathy that is expansive, progressive, science-fostered, science-fostering, and world-conquering."

It is not always, however, that the author gives his reasons for the selection of his medicines, because he says, "within the ordinary limits of a practical treatise like this, it is not feasible to motive every prescription, and hence the part entitled 'Remarks on Therapeutic Principles,' which will be found to be very interesting and in which he may be said to have general reasons once for all. In the body of the work he very often gives simply the names of the medicines he had used in particular cases leaving the "competent" to find out reasons for them, saying that "for the incompetent I am not writing." Here the author evidently forgets himself. There is no use writing for those who are competent. But notwithstanding this defect which is a common one in all his books, this book on the *Curability of Tumors* is, like all his other works, a really very practical book, and will amply repay perusal. The reader may not be "competent" enough to find out all the reasons of his prescriptions, but he will not be a loser if he tries though he might fail. The cures themselves being genuine ones will encourage him in the pursuit of his difficult task, and with the aid of the shrewd observations and lucky hits with which the book abounds he will often succeed.

EDITOR'S NOTES.

Mosquitos Attracted by Sounds.

Major Ronald Ross writes to us from the School of Tropical Medicine, University College, Liverpool, to say that he has recently received a communication from Mr. Brennan of the Public Works Department, Jamaica, containing the following observation: "You will pardon me for drawing your attention to the fact, if you have not already noticed it, that the mosquitos (I do not know if every variety) will respond to such sounds as a continuous whoop or hum. I have tried the experience lately, and find swarms gather round my head when I make a continuous whoop. There may be, however, some particular note or pitch that would be more attractive to them." So far as we are aware, this observation is new, and would afford an interesting subject for investigation on the lines of Dr. Nauttall's recent research on the colours attractive to mosquitos.—*Brit. Med. Journ.*, Oct. 12, 1901.

Obstruction of Wharton's Duct by a Toothpick.

In the August issue of the *Dental Cosmos* Dr. Aguirre narrates a case in which Wharton's duct was obstructed by the fragment of a toothpick. The patient, a young girl, aged 18 years, had complained for a long time of pain in the region of the submaxillary gland. The pain increased during mastication and gradually became so severe that it prevented her from eating. The submaxillary region was found to be swollen, the skin over the gland presenting a deep red colouration. The floor of the mouth was acutely inflamed, the papilla of Wharton's duct projecting about half an inch beyond the level of the surrounding tissues. An examination of the mouth disclosed the presence of a pointed body in the duct which on being removed proved to be a fragment of a toothpick about three-quarters of an inch in length. The toothpick was covered with a calcareous deposit.—*Lancet*, Sept. 14, 1901.

Comparative Consumption of Alcoholic Beverages.

In the report on alcoholic beverages recently issued by the Board of Trade some interesting comparative statistics are given showing the consumption of wine, beer, and spirits in this country, on the Continent (particularly in France and Germany), in the United States, and in the principal British Colonies. In regard to wine, every 100 people in this country consumed on the average about 39 gallons in 1900; in the United States during 1899 every 100 people consumed

only 33 gallons ; in Germany the consumption amounted to 145 gallons ; and in France to 2,540 gallons. Of beer, 100 persons in Great Britain drank 3,170 gallons in the year ; in Germany 2,750 gallons ; in the United States (in 1899) 1,330 gallons ; and in France only 620 gallons. Of spirits, 109 persons in this country consumed, in 1900, 112 gallons ; in the United States, in the previous year, an amount only just below that ; in Germany, in 1900, 194 gallons ; and in France 202 gallons. The total consumption of spirits, estimated as proof spirit, amounts to about 1 gallon a head in Great Britain and in the United States, while it amounts to about 2 gallons a head in Germany and in France. The returns for the year 1898, as was pointed out in our columns last year, showed that the total consumption of alcohol, whether in wine, beer, or spirits, was estimated at 377 ounces a head in Great Britain, 427 ounces in Germany, 295½ ounces in France, and 196 ounces in the United States.—*Brit. Med. Journ.*, October 12, 1901.

Vesical Calculus weighing 200 grains in a Boy removed by Suprapubic Lithotomy.

Dr. E. Mansel Sympton, Surgeon, Lincoln County Hospital, has reported the following details of the case :

W. E., a lad aged 11, was admitted into the Lincoln County Hospital under my care on October 22nd 1900. He had suffered from severe and increasing pain in micturition on and off for five years ; he has been passing water more frequently, and has to pass it often at night.

On October 25th he was sounded while under the influence of chloroform, and a stone was felt particularly in the right anterior portion of the bladder. It was estimated as being about an inch and a half long. There seemed very little room in the bladder.

On October 30th he was put under chloroform, and suprapubic lithotomy was performed. A stone was extracted, composed of uric acid coated with phosphates, measuring 2 inches by 1½ inch and weighing 200 grains. The bladder was sewn up with fine silk sutures (as the bladder was so small this seemed to be preferable to leaving the cut unstitched), and the skin wound with silkworm gut, leaving the lower end of the skin wound open with a gauze drain.

October 31st. He was much relieved ; no pain on micturition, though he was not able to hold his water. Pulse and temperature were both good.

The after-history of the case was uneventful, and he was discharged cured on December 3rd, 1900.—*Brit. Med. Journ.*, Oct. 19, 1901.

A Fatal Sting.

The folly of neglecting trivial accidents is fortunately seldom emphasised with such severity as it was in a case reported in the lay papers this week under the heading of "Death from Acute Blood-poisoning." A man while employed in some printing works complained of being stung over the left eye. Although the accident happened in the morning he did not seek medical advice until the following day and he died in the same afternoon. At the inquest it was found that "death was due to acute blood-poisoning, caused by a sting, probably that of a wasp." We have no guide as to what evidence led to the suspicion of a wasp. Unless such evidence is strong the probability is rather in favour of the sting having been delivered by one of those flies, numerous in some localities, which are capable of perforating the epidermis and which are more likely than wasps to be the purveyors of virulent septic material. However, the poison was introduced, and wherever it came from it must obviously have been of a high degree of virulence to have caused death so rapidly. The site of infection close to the loose tissue of the eyelid, was unfavourable for the patient, and should have led to such medical measures being sought as might have prevented the untoward issue of the case. Strong antiseptics applied early might have controlled, if not counteracted, the poison, and the rapid spread of inflammation in the cellular tissue could most probably have been, at least considerably diminished by suitable applications. We are never anxious to encourage people in making a mountain of anxiety out of every molehill of accident, but in such cases as those of a sting it is better to pay a visit to a medical man, though it afterwards turns out to have been unnecessary, than to risk disaster which might be prevented by such a visit.—*Lancet*, September 14, 1901.

Conjunctivitis and Retinitis from Exposure to the X Rays.

Inflammation of the skin from exposure, to the x rays is now well known, but cases of injury to other tissues are very rare. In the *New York Medical Journal*, of Sept. 21st, Dr. J. W. Sherer has published a case in which conjunctivitis and incipient retinitis were apparently produced by repeated exposure to the x rays. A medical practitioner, aged 29 years, who had been daily exposed to these rays for three and a half years, was seen on Oct. 11th. About six months previously his eyes became sensitive to sunlight and the ocular muscles were unduly fatigued by near work. Slight conjunctivitis had just appeared. Vision was normal. The discs were slightly blurred and the fundi were abnormally red. A 1 per cent. solution

of nitrate of silver was prescribed for the conjunctivitis, to which it quickly yielded. When the patient was seen again, on Nov. 10th, desquamative dermatitis, accompanied by bronzing, had appeared on the face—a condition characteristic of the action of the x rays. The eyebrows and eyelashes were almost completely lost. The conjunctivitis had recurred, but was limited to the lower lids. The fundi were much more congested and reddened. The discs were much blurred. The eyelids were then protected by steel plates with plate-glass windows. The conjunctivitis and retinitis disappeared in about a month. Nine months later the fundi were normal and the eyebrows and eyelashes were growing again and there was only a trace of redness in the conjunctiva. It is of interest that of three cases of cancer in the eye treated by the patient with the x rays in which 75 sittings were given irritation of the organ occurred in only one. In a fourth case in which 37 severe applications were made ulceration of the cornea occurred. Dr. King of Toronto has reported a case of conjunctivitis, loss of eyebrows and eyelashes, desquamative dermatitis and exfoliation of the hair and nails from the x rays.—*Lancet*, Oct. 26, 1901.

Scent.

A considerable difference of opinion exists in regard to the propriety of using scent upon the person. The practice is of oriental origin and had for its original object the desire to make the person pleasing to the opposite sex. Not a few quaint customs, however, have turned out in practice to have other influences than were originally designed, and this may prove to be the case with the personal use of perfume. It should be remembered that the basis of all perfumes is an essential oil of some kind, derived either naturally from flowers or leaves or artificially by a synthetic process. In either case the essential oil is a powerful antiseptic and possesses disinfecting properties not less in degree than those of carbolic acid itself. As is well known, the essential oils absorb atmospheric oxygen, forming an unstable compound easily lending oxygen for the work of purification. Pine oil, eucalyptus oil, and turpentine act readily in this manner—a fact which probably accounts for the salubrity of the air of pine forests and eucalyptus wood. The use of scent by many women is excessive, and by men is looked upon as effeminate—a prejudice that we confess to sharing—and yet the question naturally arises,—As we study our environment to please the eye by colour and natural effects and to please the ear by musical notes, why should we not make similar endeavour to please the nose by agreeable and frag-

rant odours? Each sense may suffer offence and there is no reason why each sense should not be equally defended in this regard. And the use of scent on the pocket-handkerchief, which is where we commonly find it, is calculated to exercise a higher office than merely to please the sense of smell. The handkerchief may easily prove a source of infection, for it is made to be the common receptacle of secretions from the nose and mouth, and the employment of an antiseptic handkerchief is perfectly consistent with the dictates of common bacteriological evidences. The liberal use of scent on the handkerchief is calculated to make it antiseptic and to destroy the germs in it, owing to the action partly of the spirit of the scent and partly of the essential oils dissolved in the spirit. Before, therefore, we condemn the persons who use scent upon the handkerchief for practising a foppish or luxurious habit we should remember that they may actually be doing good to their neighbours by checking the distribution of infectious materials.—*Lancet*, September 21, 1901.

Auto-Extirpation of the Larynx.

The amount of self-mutilation of which the mentally unsound are capable is very remarkable. It is doubtful if any more striking example of this has ever occurred than a case described in the *Comptes Rendus* of the Forensic Medicine Section at the recent Paris Congress. A woman, 42 years of age, went with a neighbour to the public baths. While they were waiting for admittance the friend suddenly missed her and, not succeeding in finding her, returned home. The neighbour went to the woman's rooms but found them closed and knocked at the door in vain. After nearly two hours the neighbour, learning that the woman had been seen to return, went and told the husband, who entered the room through a window. The woman was found alive, lying in a pool of blood with her throat cut. A medical man arrived about half an hour later and began to dress the wound, when to his astonishment he found that the larynx was missing. He searched the room for it and found it some feet away, and near it was the table-knife with which the deed had been done. The hæmorrhage had ceased and a few stitches were put in. The patient was sent to a hospital and died some eight or nine hours after she had cut her throat. There was not the slightest doubt that the case was one of suicide. The portion removed consisted of the entire larynx, a part of the thyroid gland, the anterior wall of the pharynx, and the front and upper part of the œsophagus. The carotid arteries, the internal jugular veins, and the vagi were not wounded. The larynx showed numerous cuts, but none of the skin of the neck had been removed with it. A small cut on the terminal phalanx of the left middle finger induced Dr. Szigeti, who reported the case, to believe that the woman with a knife in her right hand incised the skin and cut across the upper end of the larynx and with her left hand she tore it away. The importance and interest of this case can hardly be over-estimated. It is important to recognise that these extensive injuries can be self-inflicted, for a charge of murder in such a case might easily receive much support from the apparent impossibility of such an injury being suicidal. In this way the case compares well

with one reported in our columns last week by Mr. C.A.J. Wright of Leytonstone. A paper in this number of THE LANCET by Mr. F. G. Harvey on Excision of the Larynx is of interest when read in connexion with this case ; for the paper shows the difficulty of the operation which this unfortunate woman managed somehow or other to perform upon herself.—*Lancet*, September 21, 1901.

Differential Diagnosis Between Small-Pox and Chicken-Pox.

In another column we publish a letter from a correspondent drawing attention to the fact that the vesicles in chicken-pox are unilocular, whilst in small-pox they are multilocular, so affording a valuable differential test between the two diseases. As has been shown in the present outbreak of small-pox the diagnosis between that disease and chicken-pox is of considerable difficulty and, needless to say, an error may give rise to grave results, not only to the individual affected, but to the community at large. There are other differences between the two of which we may remind our readers, more particularly as the younger generations of practitioners have not had many opportunities of observing cases of small-pox. The initial symptoms are not so marked in chicken-pox—indeed, they may be entirely absent, whilst in small-pox the constitutional symptoms appear early and there is high fever. It is, however, to the eruption that most attention is naturally directed. In chicken-pox it is most abundant on the trunk and is less on the face and extremities. It is discrete and may appear in one crop or in successive crops, during a period of from one to five or more days. In small-pox the eruption is most abundant on the face, arms, and legs ; moreover, there is a characteristic fall of temperature after the appearance of the rash. In chicken-pox the eruption is at first macular or papular, but becomes vesicular within a few hours. The vesicles vary in shape according to the part of the body on which they are situated, being oval on the chest, abdomen, and back, circular on the scalp, and irregularly round on the face, whilst on the arms and thighs they are mostly circular. The vesicles likewise vary in size on the various regions. They are clear, bright, and shiny and filled with a clear fluid. In small-pox the eruption is not fully vesicular within from six to 12 hours of its appearance, and the vesicles when formed are not oval. Previous vaccination frequently changes the characteristics of the small-pox eruption. Dr. J. MacCombie, writing in Professor Clifford Allbutt's "System of Medicine," also points out that on the extremities the similarity of the vesicles of chicken-pox to those of modified small-pox usually increases in direct ratio to the distance from the trunk. In many cases of chicken-pox the vesicles on the forearms, legs, backs of the hands, and back and dorsum of the foot are round and hard, small in size, not unlike the eruption of modified small-pox, and if only the eruption on the forearms, hands, legs, and feet be observed it would be impossible in more than half the number of cases to say whether the disease was chicken-pox or small-pox. But all cases of small-pox present typical vesicles on either the abdomen, chest, back, thighs, or arms. Especial regard must therefore be had to the distribution of the rash, and especially to the fact that in chicken-pox some of the vesicles at

least have reached their full development within one day from the appearance of the papule, while in small-pox the vesicles are not fully developed until five days after the appearance of the eruption.—*Lancet*, October 12, 1901.

Self-Drugging.

Dr. Luff discoursed learnedly and wisely before the Pharmaceutical Society on the lost art of prescribing, which he attributed chiefly to the extensive use now made both by practitioners and by the public of ready-made remedies. Most patients of any experience have now read up the symptoms of their ailments, real or supposed, in "Quain's Dictionary," and carry their hypodermic syringe and their bottle of pills or tablets. Among the other evils of this system not the least is the terrible over-drugging that takes place. The craze for self-physicking is rapidly developing into a form of mania. People impoverish themselves by drugs as others do by drink. The following case, which we take from "American Medicine," is a striking example of the excesses into which this pernicious habit may carry its victim; but it could doubtless easily be paralleled in the experience of many medical practitioners. A Philadelphia man was arrested by his wife for failure to support his family. For several years he had followed the newspaper advertisements, and imagined himself the victim of all diseases described by the enterprising advertisers. A partial list of the takings is appended, "washed down with two gallons of lithia water each week":

48 bottles	...	...	...	...	...	Swamp Root.
24 bottles	...	...	...	...	...	Celery Compound.
60 bottles	...	...	...	...	...	Expectorant.
80 bottles	...	...	...	...	...	Vermifuge.
75 bottles	...	...	...	...	...	Kidney Cure.
60 bottles	...	...	...	...	...	Peruna.
36 bottles	...	...	...	...	...	Swayne's Specific.
57 bottles	...	...	...	...	...	Omega Oil.
75 bottles	...	...	...	...	...	Catarrh Remedy.
30 bottles	...	...	...	...	...	Munyon's Remedies.
50 bottles	...	...	...	...	...	Nervura.
24 boxes	...	...	...	...	...	Skin Ointment.
60 boxes	...	...	...	...	...	Magnetic Ointment.
36 boxes	...	...	...	...	...	Cough and Catarrh Root.
15 bottles	...	...	...	...	...	Glycerine Tonic.
37 boxes	...	...	...	...	...	Tar Tablets.
25 boxes	...	...	...	...	...	Cold Cure Pills.

Can it be wondered at that he died!—*Practitioner*, Oct. 1901.

Recent Medical Terminology.

There is an old saying—perhaps a rather childish one, but containing its modicum of truth none the less—to the effect that "while sticks and stones may break our bones, names will never hurt us;" but, assuredly, when we glance over Dr. Newman Dorland's list of some of the newer medical words, we begin to have our suspicions that names may not be so thoroughly innocuous as we had thought and had been encouraged to think. Not that the list is a bad list;

far from it. It is a very good list and very complete, and the definitions are carefully done and reliable; but with all that it is a list which, coming into the hands of the practitioner, might well give him pause, and might deter the young student from following so hard a calling as scientific medicine seems to be. Many of us no doubt can readily enough guess what is meant by "pseudo-jaundice," "pseudo-ileus," "vasculitis," "intimitis," "meso-neuritis," and "bacillemia;" and such words as "cerebellipetal," "cardioptosis," and "gonococcide" yield up their secret when properly struggled with; but there are other names which are not so benign. There may be a suspicion that "toxoid" means "a transformation product of a toxin, no longer toxic," but what is to be made of "protoxoid," "syntoxoid," and "epitoxoid?" Then there is "urethremphraxis" (obstruction of the urethra!), "atticotomy" (the surgical opening of the attic of the labyrinth), "brenzkatechinuria" (the presence of brenzkatechin or alkapton in the urine), "erythrocytorrhexis" (a morphological change in red blood corpuscles, consisting in the escape of round, shining granules, and the splitting off of particles), and "hydroparasalpinx" watery fluid in the accessory tubes of the oviduct). There are, also, other words which seem to be both difficult and unnecessary; surely it is a work of supererogation to coin "metopantralgia," when frontal headache is all that it means; and "epicondylalgia" seems to be equally unrequired. "Gastralgokenosis" and stomach-ache are surely nearly synonymous! New discoveries—or, rather new theories—regarding the action of bacteria on the body cells and fluids are responsible for many of these long names. There are "alexocytes," "ectasin," "anectasin," "antiabrin," "antibodies," "glabrificins," "antilyssins," "bacteriolysis," "lysin," "toxicomucin," and "toxalexin." Recent work on the fine anatomy of the nervous system has also added not a few, as is seen in "arkyochrome," "axon," "axodendrite," "axospongium," "inaxon," "karyochrome," "polyaxon," "stichochrome," and "telodendrion." Cumbersome although many of these names are, they have nevertheless an important part to play; for, while they are neither English nor French nor German, they are yet intelligible to all well-educated Englishmen, Frenchmen, and Germans, being derived from Greek and Latin roots, albeit not always quite correctly put together. Sometimes the absence of some such international name has deprived a writer of the credit of a new mode of treatment. For instance, "cleidotomy," or the division of the foetal clavicle in cases of difficult labour, was performed in England and described by an English writer, but no name was given to it, and later on it was given back to us from Germany with the term "cleidotomie" appended to it in successful fashion. So there is something in a name after all. Let writers, then, take heart of grace and coin new words if they have any new thing which is by any chance worth remembering; but let them be less polysyllabic than some in Dr. Newman Dorland's list. It is a somewhat curious fact that in this long list there are two names specially associated with one part of the British Isles; they are "emol," an "emollient soapy mineral from Perthshire;" and "avenolith," an "intestinal calculus or enterolith formed around a grain of oats, said to be common in Scotland." Shade of Dr. Johnson!—*Brit. Med. Journ.*, Oct., 12.

CLINICAL RECORD.

Foreign.

A CASE OF CANCER CURED BY *CALC. FLUOR.*

By C. E. JOHNSON, M.D., SHERMAN, TEXAS.

Frank Gatewood, age 35 ; occupation, cow boy. Always enjoyed good health until 1891, when there appeared upon the posterior surface of the left arm a small lump, not larger than a pea, freely movable and painless. It grew slowly during the next two years, until in 1893 it had attained a length of seven and a half inches and a breadth of three and a half inches. During 1893 the skin overlying the tumor took on a very unhealthy appearance, turning a greenish-purple color, the skin finally breaking down, forming a large ill-conditioned ulcer, extending in width, but not in length, until the edges lacked but three-fourths of an inch of coming together, the discoloration around the ulcer being a blackish-green, shading off to purple, then yellowish-green, spreading to the wrist below, up and over the shoulder above, over the chest and back and down to the 10th or 11th rib of the left side.

Before the ulcer formed there were crawling sensations with burning stinging pains relieved by keeping it covered with vaseline.

After the ulcer formed the pains disappeared but the patient took on a sallow and very decided appearance of ill health.

The face became very pale and drawn.

Eyes dull, expressionless ; whites blue.

Very much constipated, no desire for stool for days, seeming to suffer no inconvenience therefrom other than a superstition that he would die if the bowels did not move at least every second day.

No stomach trouble ; appetite fairly good and no complaint of any disturbance of sleep.

The ulcer was filled in with a rough, hard, honey-combed appearing mass, looking for all the world like necrosed bone, bright yellow in color and firmly attached to the underlying muscles, but not to the humerus, and constantly discharging large quantities of bright yellow, foul smelling "matter."

The edges of the ulcer were hard and considerably elevated, overlapping the edges of the necrosed-like bone.

The axillary and cervical glands were enlarged, painless, but of stony hardness.

There was a remarkable lack of subjective symptom manifestation.

This patient had been under treatment by many physicians in North Texas and Indian Territory during 1893 and 1894, who told

him he had cancer and there was no cure for it. He then consulted a surgeon in St. Louis who gave him the same discouraging opinion. From St. Louis he went to Chicago, where he was told that there was no medicine known that could benefit him, and that a surgical operation was out of the question, owing to the unhealthy condition of all the tissues of the arm and shoulder; that his doom was sealed and the best he could do was to patiently wait for the grim messenger.

On his way home from Chicago, he met at Muskogee, Indian Territory, a lady, whom I had cured some fifteen years before of a large tumor of the breast, and as she had remained in the enjoyment of good health ever since, she advised him to see me, which he did the next day.

May 1st, 1895. After a most complete examination, questioning and cross-questioning him for fully five hours and failing to get anything more definite or characteristic than I have given above, to his direct question: "What is it?" I frankly told him I did not know. To his next question, "Can I be cured?" I told him I thought he could, but I would not take the case unless he was willing to give me at least two years in which to treat him, and a sacred promise that he would not, while under my treatment, use any medicine for any purpose except what I gave him, and make no applications to the ulcer except plain unmedicated vaseline. After considerable hesitation he accepted my terms. The constipation was to him a great stumbling block; but I told him there could be no compromise, that he must adhere strictly to my medicine.

Calcareo Fluorica was the remedy selected. *Hering's Guiding Symptoms*. p. 135, had the following symptoms and the nearest similar condition:

Indurated cervical glands of stony hardness.

Corresponds to solidified infiltrations.

Indurated enlargement of fascia and capsular ligaments of joints.

Nodes and hard bone-like swellings.

Osseous growths in tarsal and carpal articulations. (If these develop in small articulations why may they not also develop in other tissues unconnected with joints?)

The hard elevated edges of the ulcer and the bone-like appearance of the centre, while many times I have seen the dark purple discoloration of skin surrounding ulcers clear up under this remedy, decided its selection.

I gave him one dose of Calcareo Fluorica 200 from a graft given me by Dr. John E. Thatcher, of Dallas, Texas, by him obtained from the Rochester Homeopathic Hospital, with unmedicated powders to last thirty days.

June 4th, 1895, he returned. So far as I could discover appearance unimproved, but as Dr. Burnett would say: "He thought he felt a little better within himself." I gave him the second dose of Cal. Fluor. and placebo for a month.

July 3rd, 1895, he returned rather more cheerful; said he felt "quite a good sight better and stronger." Believed there was a change in the ulcer as it did not discharge so freely; the foul odor was not so marked, but the discoloration was but little if any improved. He now had a dose of Calcareo Fluorica 10 m, from a graft given me by Dr. H. C. Morrow, Austin, Texas, I think from an original Fincke potency, and placebo for thirty days.

July 31, 1895, I had a letter saying he was certainly better, was sure the ulcer was beginning to heal from the edges and the discoloration of the skin was beginning to clear up. I sent him placebo for thirty days.

Sept. 2, 1895. Received a letter saying he knew himself to be better, that the improvement was noticed by his friends, and that he would not take the long ride, 60 miles, to see me unless I thought it necessary. I sent him placebo for sixty days with the request that he report in person should there be at any time an aggravation.

I heard nothing more from him until about the middle of December, when he wrote for more medicine, saying: "I am getting well like a house on fire." I sent placebo with imperative instructions to take only one dose every third day.

This was the last I heard from him until one day in June, 1896, there came into my office a strapping large man looking to be two hundred pounds in weight. He said nothing, but walked into my reception room, closed the doors and began to disrobe himself. I felt rather uneasy as I thought perhaps my visitor might be insane. When he had bared his left arm and shoulder he turned to me almost too full for utterance and pointing to a small scar not larger than a twenty-five cent piece asked, if I thought that was a cure. I had failed to recognize in this large healthy man my thoroughly discouraged patient of the year before. The skin over the arm, shoulder and chest had lost the ugly purple color it had when I first saw him and was now of a beautiful healthy appearance.

I have heard from Mr. G— at intervals since then, and this morning, August 30, 1901, he still enjoys good health and is abundantly able to take care of his cattle ranch. He has had no occasion to take any medicine since the Sac. lac. sent him in December, 1895. His trip to see me in June, 1896, was after he had been to St. Louis

with cattle. While there he called upon the surgeon who fourteen months before had told him there was no help for him. After he had made himself known to the surgeon he well remembered the occasion of the former visit, and was thoroughly surprised and delighted to see him alive and after examining the arm, pronounced it one of the best evidences of a cure he had ever known, and thought the case ought to be published that the profession might learn of remedies capable of doing such work. But upon being informed that the cure had been brought about by medicines prescribed by a Texas homœopath, the great man lost his head, and as Mr. G. expressed it, "made an ass of himself." He declared it was a lie; that no d—d homœopath had cured him; that a mistake had been made in diagnosis: that it was not a cancer; that it had been only a simple affair and would have gotten well of itself, etc., etc.

Be that as it may, the physicians in North Texas who had had the patient under observation during two years evidently think it a case of cancer cured by medicines, as one of them—and one of the best in the school—urged the patient to find out from me what I had given, said he would give \$1,000 to know what remedy I had discovered that would cure cancer. Of course I did not give the "secret" away, but sent the gentleman word that I would gladly inform him for the amount named. As he has made no further inquiries I concluded that he was not so desirous of therapeutic knowledge as he thought, or else he felt he would be compromising his dignity by taking instruction directly from a homœopath.—*Medical Advance*, Sept., 1901.

Selections from Contemporary Literature.**ADDRESS IN MEDICINE.**

*At the Annual Meeting of the British Medical Association at Cheltenham,
July-August, 1901.*

BY

JAMES F. GOODHART, M.D., LL.D., F.R.C.P.,
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FRIENDS IN COUNCIL.

To be honoured by the request to give this address before the British Medical Association is an opportunity that comes only once in a man's lifetime. How shall I utilise it? It might be thought perhaps that an almost unlimited scope is here given to the lecturer, but in the selection of a subject there are indeed several sharp limitations to his choice.

In the first place, it being an address in Medicine the only thing that I must not lecture upon is medicine in detail. In the next place, as I understand it, this is an occasion on which in some measure we sit in open session; when men other than medical have in years past sought and found topics of common interest in the subject matter of the address; and then the lecturer himself is in, to him, a unique position; for once in his life he becomes for the moment, at the invitation of our great brotherhood, the mouthpiece—ay, even the priest sometimes, if he be happily inspired—of the temple of our most sacred longings; of our strongest feelings, our highest aspirations. Is not he then indeed under the most strict of limitations to whom it comes, to have to put as a duty, with all the authority that such an opportunity offers, his view of the position of medicine at the present day of its weakness or its strength, as it enters into the life of the English speaking peoples. There is, however, this much of freedom in my choice: "For what can a man do that cometh after the king even that which hath been already done." Many of you must have often thought and said before what I shall say to night, but I conceive that to express the consensus of your thought, to "watch what main currents draw the year," is the duty upon which you would wish me to embark.

The position of medicine then to-day as I see it is this: The living body, the clay between the potter (the doctor) on the one hand; and the wheel (the blind guidance of animal life) on the other.

The living body! Think of it, if you can, with that freshness and plasticity of mind, that awful wonderment, that first came to you when out of the darkness you first began to peer into your dawn, and think about the phenomena of life. Think of it—brain, spinal cord, heart, lungs, and so on. All separate, yet all one. All separate, so that each has its individual wants, each its own special food which it needs to draw selectively from a common stockpot (I beg pardon of our juices), each with its own methods of work, and times of rest; each so individual that if you take the imprint

of one's finger creases, the intonation of man's speech, the general character of his handwriting, and no doubt, too, if one could take it by some unconscious graphic method, the action of our muscles, the flow and method of one's thought, and so on, there are probably in the whole universe no two living beings exact in counterpart. I take this to mean that if we could see into the minute details of the working of the machine not only that no two men think alike, but no two men have hearts alike, as expressed by function; no two men have a liver that pours out its bile exactly alike; that is at the same rate and in response to exactly similar impulses or in which the ultimate elements are not individualised.

There are, of course, certain rough results which have to be obtained as a necessity of the organic combination. Without some universal gauge the machine could not work and the body with its respective organs would perish, but I take it that though these results are common to us all, the function that produces them is as much different and peculiar to the individual as the various impulses and motives differ in men and women whose output of action is a common one, and directed to the good of the body politic.

THE VITALITY OF LIFE.

And yet all our parts are one. So absolutely one that it is impossible to suffer bad pain in two separate parts of the body at the same time—one comes and the other goes. So absolutely one that when you think hard your feet grow cold, so one that when one member of the body suffers all the members suffer with it; so one that the temporary failure to lock or unlock the points at the many junctions and sidings will disarrange the whole. So much so that to any thinker sufficiently detached from himself it may well seem that the harmonies of the song of life are so extremely intricate as to be impossible of performance. And yet the song of life is sung, and on the whole to most of us the result is beautiful.

And then behind all, or rather before it, is this curious unfathomable mystery "the boon of life." "I needs must live," the body seems to say. Some cynic asks where is the necessity. But that is life, or all we know about it. The "needs must" live, an unconscious blind unquenchable energy that carries on the being irrespective of his will, and which, blending with his conscious will renders the clay at once so plastic, and yet too at one and the same time so un-impressionable. Ah, that living energy, let me dwell upon it awhile, for it supplies the motive of much that is to follow. As yet we know it not, whence it cometh or whither it goeth, but at least this may be said of it, that it rolls on from the cradle to the grave dominating the man with an absolute domination, and of it he is in some measure the unconscious slave. Take the case of a man who is so extremely ill that you think there is no hope. You turn your back and he recovers completely. Instead of saying there is no hope it would have been nearer the mark to say that man cannot die, so dominant is that force in him that called him into being. Many and many a mistake does the doctor make by underestimating the vitality of life. Take again the case of the

being, not a very common one, I grant you, in proportion to the number who would have you believe that such is their desire—who want to die and cannot do so—their masterful vitality will not let them go. Think, too, of the number of times you must have seen and talked to a man or woman drinking himself or herself to death, and who, in spite of your outspoken declaration that there could be but one ending to such a course, continues on the downward road after the same and perhaps accelerated fashion. He wills to reform, but there is that within him that is stronger than his will ; his very energy of living eggs him on to his destruction,

Forced to obey even in his own despite his being's law.

The spirit of life has no knowledge of death. It is always eager, and death comes to it as a catastrophe by the fault or decay of its subordinate ministers—the brain, the heart, lungs, liver, skin, and so on. And this irrepressible living energy will carry on to old age a very weakly flesh. In saying this I think of the disappointed ones in the race, the tired, the painful ; for I have come to the conclusion that there are those who are tired, who are full of pain, from early years even to old age. There are many of these who have missed their mark, who must be very weary of life, but the motive force of their being will not let them go. I suppose, too, that this ever restless, yearning life within us tends to show up the weaknesses of our bodily construction. It is, no doubt, only to be expected that with a restless driving power within us joints that are losing the polish of their early smoothness, bores that no longer allow of sureness of aim, tired bodies that need sleep or rest—organs, in short, that now work with labour that before ran riot in their unconscious ease—should, if stimulated, express their work in weariness that is perhaps worse than pain. Let me give an example : There are a large number of people who at the present day come and tell you that they cannot think or that they cannot concentrate their thoughts. I seldom find that the associates of these have observed any difference in them. They can, in fact, think well enough, only thought is conducted with a sense of labour now, whereas in times gone by it had glided on untold. Who does not know, too, of the common complaint of muscular fatigue, the man or woman who is always tired ? The muscular apparatus works with conscious labour, and thus all the pleasure of living is taken away ; and you cannot cure these people, because they are mostly people full of vital activity ; the spirit within them is a willing one but the flesh is weak.

Strangely tenacious is this initial energy. Decadent this part or that of the body may be, but the main spring holds still ; the suicide may be, rebellious of its mastery, snaps it ; or disease quells it by rendering its servants unable to subserve its purposes. But even this often only after a long and weary struggle in which the prolongation of life seems almost a cruelty. And still more wonderful, anon we see this fundamental life struggling on for some time after its ministers have ceased to work, and the man as man no longer lives. What wonder, then, that with this force within

us we feel, we even seem to know, that the purposes of Nature are not consummated by death, or that the strenuous spirit of a Huxley should be found to exclaim that he would prefer Hell to annihilation.

Now take these two points—the intricacy of the mechanism of the animal body and the indomitable animal spirit of life that innervates it. How do these react upon the practice of medicine, and do we acknowledge the reaction as it exists?

THE DIFFICULTIES OF MEDICINE.

It is clear, without my labouring the point, that a body so composite as ours is so very delicate a machine that there must be many and many a case presented to us where we do not, many even where we cannot, know what is the matter, and taking even the most favourable view of the progress of scientific discovery it is probable that this will be so till time shall be no longer. We cannot know because the intricacy of the machine hinders one in getting at the real facts. We cannot know because even when we have got at the facts we cannot be sure that the remedies used will get at the disease.

When we come out of the aloofness of the contemplation of growth, nutrition, degeneration, and death to take part in the active grappling with these by stimulating this function and dulling that, in the attempt, in short, to arrest or stop disease, our difficulties become appalling, but this is quite unrecognised by most of those with whom we have to deal. There has been much interesting, and perhaps interested, talk of late about water-tube boilers, their intricacy of working, and their excessive wear and tear, and the difficulty of their repair without stopping the ship. Now supposing that such a machine as our modern warship could be worked automatically with hatches down, and that the only positive knowledge to be obtained of the condition of its entrails was by the observation and analysis of the smoke, and the bilge water, by *post-mortem* examination at the breaking-up of old vessels and the recording where each had gone to pieces, would the progress of knowledge, think you, be very rapid in the evolution of the science and art of ship building? Would the feeling of power to deal with the defects of the machinery as they arose be very robust in any engineer who had had much experience? Would not "I can" have to wait upon "I am not sure," and the result be some tangent from direct purpose? And, excepting the self-righting power of the living organism, which, from my present point of view, does but make confusion worse by rendering still more uncertain the real relation between means and ends, our naval engineer is in the same position as are we, when we attempt to control or modify function, for it is impossible to get at the organ that is implicated, and function and excretion are, so to speak, waste products, or as I like to call them ash. Take the liver or the bones as concrete examples. Of the bones and the exchanges that go on between them and the other component parts of the body I think we may say we know nothing, and yet no doubt they extract material from the general store that the general store is better without, and they return to the common stock

material which is better adapted by the abstraction for the purposes of other parts. Then the liver, the largest organ in the body; its imports and exports must be enormous, and from the familiar way in which it is spoken of there cannot be a man in the whole world who does not think he knows all about it. But what are the facts? We know something about the physiology of the liver, but this knowledge has been mostly obtained by experimentation on the lower animals, by observations that occasional cases of disease afford us, and by certain inferences that we draw—very much at second hand—from the changes produced by disease in the organ. But all these things, valuable as they are, and without which where we should be I don't know, yet are very far from giving us that real and intimate knowledge of the living organ that we require to enable us to treat its diseases.

For example, there is not a soul in this room to-night who, if I asked him how and why gall stones are formed, could give me any useful information on the subject. Yet the kernelled public flock to us for treatment, and expect to be cured. And when, alas, as often happens, drugs fail, they apply to surgery, which in that case is but a refuge for the destitute, for that is not the treatment of disease.

Then there is the question of hepatic stimulation of the liver by cholagogues—we still give our blue pill and podophyllin, and so on, and speak with early innocence of “touching” the liver, and so still perpetuate the idea that certain remedies go for the liver and increase its various secretions. I don't say this is all wrong, or that the remedies are not valuable in the conditions for which they are given, but all the positive experimental evidence that we possess I think goes to show that these remedies are chiefly intestinal in their action. And I instance them particularly because they not only show up the difficulties that an intricate machine causes us in obtaining information, but also another point too often forgotten—which nevertheless is constantly interfering with our inferences on the treatment of disease—that we send a remedy forth on one mission which we suppose it to have performed, whereas in reality its virtue has been expended in quite a different direction. Take the matter of pain—a pain with a definite cause if only we can find it, but it is deep down in the recesses of our impenetrabilia, and it has absolutely no distinguishing feature—so that no human being can do more than say that it may be this or it may be that. A position this that would seem to claim for the doctor all the patient's sympathy—it usually, however, meets with derision.

Take next the vital element and its bearing upon the handling of disease. Here again we are often foiled when we would be positive because of the personal equation, as it is called, the individuality of the patient. When Mrs. Smith asked her doctor why it was that a particular pain possessed her he is said to have replied with ready wit and no less truth, “Madam, it is because you are Mrs. Smith.” And the lady no doubt thought her doctor a very amusing man, but she had not a glimmer of the great truth that had been administrated in such an excellent coating. But, indeed,

that "because you are Mrs. Smith" constitutes one of, if not the most, insuperable of the difficulties to framing any system of precise medicine, and over and over again fattens crass ignorance at the expense of real knowledge. In the practice of medicine you cannot jump the fact that the inflections of your voice are not exactly like those of any one else; and as long as the world lasts, this variability of the living force, this individuality, will prevent the attainment of the popular desire—a cut and dried remedy—not only for every disease—that is no use to Dick when the remedy touches only Tom's variety; no, we want a remedy for every disease, and for every variety of it, as met with in the young and in the old, in the otherwise healthy and the unhealthy, under the specious garb of mildness, or the pronounced type of malignity, that is another of the cruxes of medicine that the world wots little of. And then as part of the animal energy of man, of the spirit of life, perhaps the chief human expression of it, comes that wonderful indescribable something that we call hope. One hears talk of forlorn hopes, but hope is never forlorn; its spring is always light and buoyant, and it is as indomitable as life itself. Of all the unnatural conditions of which medicine takes count, perhaps none is so much so as life without hope. When hope flies out of the window death is lurking at the door, but in the good providence of God man cannot quench it and I beseech you that you never try. And it is these attributes of hope so indissolubly linked as it is to life, that constitute it indeed a thing to be reckoned with in our dealings with disease, for if not forlorn it has one characteristic—I will not call it a failing for, after all, it brings more help than trouble in its train—it is generally blind in the matter of life to anything but the certainty of returning health. It is ever ready to ask three questions and no more. What is the matter with me? What will cure me? And how long will it take? And to these it expects immediate and positive answers.

With human life, then, and hope before us we may pass on to the patient who embodies them and to the doctor who while also similarly endowed, has yet to influence and control them as best he may.

PATIENTS.

We must for a moment consider each of the two parties, their influence upon each other and thus upon the progress or otherwise of scientific medicine. Are we gradually surging on by a natural process of evolution to a perfect system of the treatment of disease? Is the management of the sick man and the ailing man in the present day as perfect as it might be? On the larger side of the subject—that of preventive medicine and the scientific knowledge of disease—it is obvious that great discoveries have been made in the recent past, and the dawn is surely breaking of a still more brilliant day. So far as this side is concerned I think it may be said that we are steadily working upwards to that time when much of the present gross disease—tuberculosis, microbic fevers, etc.—shall be no longer, though even here, if there were time, I might pause to show how a weak sentimentalism sometimes steps in to delay the promise of the future;

but in the aspect with which we as physicians are concerned, the daily treatment of disease, with all the manifold details of the aches and pains that flesh is said to be heir to, one cannot but feel that there is room for improvement, both on the side of the patient as on that of the doctor. Now, on looking over the field of disease, although it is said that the average duration of life is longer than it was, I neither find that medicine is less often in request, nor that an ailing public is less in evidence. I am here to contend on the contrary, that we are growing more and more sensitive about our health, more impatient when the flies of ill health worry us, that we are crying more loudly for a cure for every disease, whether it be one that is commencing and curable or so advanced that—as, say, in a bad case of phthisis—the greater part of an organ is practically destroyed, and a restoration of its health impossible.

This is shown in several ways : in the first place the sick man wants to know too much. He wants to know what is the matter with him when it is not possible to tell him ; moreover, he will have an answer, and if not he thinks the doctor an ignoramus, and calls in someone else. How blind he is not to see, it seems so obvious, that in this complex body of ours there must be hundreds of little accommodations between the various organs and parts that it is impossible to explain or be sure about, that there must be numberless reactions that we cannot give a cause to ; numberless conditions that will bear several interpretations ; numberless others that cannot be labelled at all ; numberless states that look grave, and yet if we could only peer a little into the future get just one glimpse behind the veil, we should see were just on the turn towards health, and no matter what drug was given would do well, the cradle these of many an ignorant man's reputation ; and numberless cases that seem to be doing well that are just on the verge of a catastrophe, and these the grave of many a competent man's success. Oh if men would only think a little more, it seems so obvious that they must then see that even the best of us are but gropers in the dark, and that ignorance acknowledged is no proof of want of skill, rather is it a proof of thought and of the highest devotion to the advancement of our calling. Any fool can give a name to a disease, if, as is too often the case, the letter satisfieth. But what if the name is wrong, and the name determines an important line of treatment ; what if the letter killeth ?

It is because the public will have a disease ticketed when there is no means of identification that these difficulties arise, and because it still sets such store by the man who plunges. How much better would it be if the obvious were better recognised, that the doctor is but mortal, and if others than ourselves could take part intelligently in our doubts and difficulties. And having got a name for his complaint, from either wisdom or ignorance the patient thinks his physic tumbles out of the same slot, and that between the two he will be cured offhand. Someone comes into your room and says " I have got to do this or that on a particular date, and you must get me well by that time." It is the doctor or his medicine that has got to do it ; there is no thought behind, as there should be, of " Will my tissues or

the disease allow of this being done?" There is no idea of doubt, none of the necessity of waiting to see which way the cat jumps, none that the powers of medicine are limited in all sorts of ways, and that there are numbers and numbers of instances where there is no indication whatever that medicine will do any good whatever; that waiting for "developments or subsidencies is the only skilful course. Waiting is described as "nothing is being done for me," and some one else is called in with a "Can't you do something?" "Doctor, I'm just stuck," said a poor fellow to me the other day when all hope had left us, though keeping him radiant still.

And it is because life understands so little the common sense of this waiting, this doing nothing, this length of illness, and so on, that it understands so little the true value of consultations. The sick man or his friend has a rooted idea that when a second opinion is sought it is to set the first opinion right. Now the wise man is he who makes fewest, there is no man who never makes any mistakes, and least of all in medicine. Our uncertainties are so thickly strewed on all sides, that it is seldom that one is in a position to give a very positive opinion; but I think I may say, with an approach to certainty that I am in accord with those who are in a similar position to myself, that the education of every member of the medical profession at the present day is so high, that it is seldom indeed that a consultation does not produce a well thought out and probable diagnosis from the practitioner in charge. It is not a case of 'right or wrong; it is not altogether a question of less or more experience; it is a meeting to discuss doubtful and difficult points to which each party contributes an equal share. But so little is this the light in which consultations are regarded, that it has become a saying that doctors in consultation always agree; doctors apart will always differ. "I am constantly being annoyed, in all innocence, by being told that "I want a perfectly independent opinion," as if that were the last thing the applicant considered himself likely to get. An independent opinion too often means an opinion more in accord with the wishes of the patient than is the one which has been originally given. Doctors would be only too glad to discuss the doubtful points of a case with the patient or his friends, if those could be found who could appreciate them intelligently; but it is hardly to be expected that differences of opinion should be made much of when the sick man is unable to appraise them at their true value; puts trivial and important matters equally into the same scales of right and wrong; and when wrong always implies with them discredit. And discredit may come from the most worthless sources. For instance, one man may have ordered hot water for drinking, and No. 2 says drink cold water. It does not matter a mote in the sunbeam, which of the two is drunk, but the symptoms change within a measurable distance of the alteration, and the undiscerning man puts it all down to "the new treatment." A change in the medicine is made, say more to ease the patient's mind than with any real expectation of influencing the course of the disease; and while one man reaps the credit the other has the blame, and each alike may be entirely innocent of the result.

Then this morbid sensitiveness of people in the present day is well shown by the rapidity with which they fly to medicine. This fact is, I think, patent enough—it is to the doctor, at any rate—for the number of new drugs for all sorts of maladies, imaginary and real, that are being daily launched upon us is bewildering in the extreme.

A woman with migraine has gone the round of all the coltar products that were ever invented, as well as caffeine and other things, before she thinks of applying to our calling. Most people know all about lithia and piperazine and the respective merits of the various preparations of Carlsbad salts; they all have their own form of blue pill, which generally from the look of the prescription seems to date from before the Flood. They have their own special dinner pill and an aperient pill as well; they know all about podophyllin, and euonymin, and cascara. They take their bismuth and soda for indigestion, mindererus spirit and Dover's powder for colds, camphor for cholera, chlorodyne for the stomach-ache; and one old gentleman that I have known, though he had been bred amongst doctors and was old enough to know better, was so enamoured of drugs that he took a daily dose of gentian and ammonia as his lunch.

Then, too, with what impatience do men and women in the present day rush into the not always sufficiently repellant arms of surgery. A little pain unnerves them, and all they know of surgery is its successful side. It is a day of great things, and why should they not have the benefit of these advances? And so with an ache here or a pain there they undergo an operation. The energy of life that I have so often spoken of knows nothing of risks; knows nothing of shock; will hear nothing of waiting and rest in bed, and the disappointment in consequence is often considerable, although the operation was a great success.

DOCTORS.

And now for the potter who has more or less to fashion this clay as it somewhat impulsively rolls along under the momentum of the wheel of life. The simile is not a good one, for the doctor is never a fashioner, although sometimes in the plenitude of his pride he conceives himself to be, and then o'erleaps himself, not he, but his patient, unfortunately, falling on the other side.

What are we doing in this impatient, restless age to stem the tide, to stay the panic, to bid the people keep its head? I do not mean in the immediate present, for we always do our best for the patient according to our lights, but with our eye on the future and that continuous progress as individuals for which the Goddess of Medicine is marking time, and surely points us to. I do not doubt, I say, that everyone of us does his best for the man that consults him, but I am not sure that in attending to the exigencies of the immediate present we do sufficiently take heed of the future. And our failings in this respect are closely bound up with those of our patients, for we in our place are so anxious to overlook nothing and to cure disease, so enthusiastic in our belief in our power to accomplish what we wish. First may be put a morbid readiness on our part to detect

disease. Engaged as we are in this pursuit there comes a risk that we too little appreciate the wide range of health ; that is how good a state of health is compatible with numberless slight and even sometimes considerable departures from normal. We tend to make our standard too severe for practical purposes. I will take an illustration from the heart. Here is an organ in which there are numberless slight departures from a rigid normal, both as regards its muscular action and functions, which mean nothing as regards the longevity of the patient, but to which a morbidly tender medical conscience refuses the title of health. Over and over again in the present day a heart is said to be strained, or weak, or dilated, or even diseased as to its valves from a want of sound appreciation of what is to be considered health, not for the general, but for the particular. One would almost think from all the talk one hears about dilatation of the heart strains in healthy young people from trivial causes, the grave conclusions that are based upon, perhaps, some slight displacement of the impulse, etc., that the heart is so fragile an organ that it needs to be coddled from the cradle to the grave. It is the fountain of life certainly, and therefore a very indispensable organ, but Nature gives to our comely as to our uncomely parts a strength sufficient for their day, and there is a large margin for emergencies in every part. It is for this reason that I hate the term weak heart. It coffins, or, worse, throws useless upon society, many an otherwise useful life. Hearts are either diseased or healthy, and, with its margin, it is a robust organ that is all the better for plenty of work. I tell you what it does not like, and that is luxurious ease, and one may well have a shrewd suspicion that many a one who coddles a weak heart dies of real disease which an indolent habit has produced.

Let me take another organ popular at the present day both with the doctor and his patient, and upon which both parties have, I fear, gone a trifle adrift. It shall be the stomach. Catarrh of the stomach is a term that is in most people's mouths, and it is a word that appears to have a strange satisfaction in the utterance. Catarrh is quite a sufficient disease, wherever it may be, to silence the anxious inquirer, and no more questions are asked. But as I have said before, the stomach does not catarrh, at any rate readily. It is a good strong healthy servant, with possibly a prejudice or two, and, if you treat it fairly, is really quite unlike most servants of the present day, most obliging and thorough. And even if, upon occasion, you do not treat it with quite that sensitive regard that it is entitled to expect, you may hurt its feelings, as any want of consideration is likely to do to a faithful handmaid who has done her best ; yet it is only a momentary estrangement, a little domestic concern that wants no third party, such as rhubarb, or creosote, or salol may be, to rub the injustice in. A little carbonic acid to soothe its ruffled feelings, and a kindly sorrow and repentance on the part of the master, with a penitential fast, and things will soon come right.

And while on stomachs I hear a good deal of a so-called dilatation of the stomach. Now a true dilatation of this organ is a comparatively rare

thing, and when it occurs it often needs, and is benefited by, rather heroic measures. But the great part of these so-called dilatations are due to a passive relaxation of our inward parts, and this to the bankrupt condition of our abdominal brains. These and quite a number of other abdominal displacements are so common, without any symptoms of any kind, that it is certain the condition is only a disease under special circumstances, and those special circumstances have more to do with the individual than with his displacement, and their best treatment is to let them severely alone. But the public won't have it. Who does not know the difficulty there is in preventing people from undergoing a serious operation for the purpose of stitching these harmless mobilities—for it is only quite exceptional that it is otherwise—into their places. It is the same in many another region, throats and noses suffer terribly from this lust of operation that has beset the public. Ears are now being swept into the panic, and I incline to think that the only region of our art that preserves its proper decorum is that of ophthalmic surgery, and it, I believe, reaps the reward of well-doing that is usual in this topsy-turvy world in being regarded by the *élite* as somewhat old-fashioned, and so it is supposed to be the thing to go abroad to skim the cream of skill. But let me quit the domain of medical surgery to take up the question of our administration of drugs. It is told, as many of you know, of the late Sir William Gull that upon a doctor excusing himself for not having discovered the existence of a particular disease he remarked that it was as well he had not done so, for if he had he might have treated it.

DRUGS.

Now, why do we give drugs? To cure disease, you answer at once, and think the question unnecessary. But wait a minute; we give drugs for several other reasons, some of which are far less free from criticism. For example, drugs are often given, not because the disease demands one, but because the patient is not happy till he gets it; too often he is not happy even then. They are given sometimes to hide our ignorance, I fear, or to mark time while we watch and wait; they are given sometimes as a gambler on the Stock Exchange speculates in "futures," an enhanced reputation being the windfall that it is hoped to secure; and then we often give drugs as an experiment in the hope that they may do good. I will deal with this last more especially, for it is a reason for giving drugs about which the public are peculiarly sensitive and ill-informed. It is often said as a matter of prejudice against the hospitals of our country—than which none could possibly be conducted more humanely and considerately—that the patients are made the subjects of experiment. So they are. But this happens not only in the hospital. If it be true—and it is true—that you and I are unique in our way, and that it is this individualism of man that constitutes the great barrier of the evolution of any system of medication, it follows that each new patient who demands treatment is more or less a case for experiment, and it is by experiment of this qualified kind—upon the king as he sits upon his throne, as for the poorest being within his

realm—not only that the value of drugs is established and new powers gained over disease, but by which an increase of knowledge of disease itself is gained. The cure of disease is always the fundamental object ; but not far behind it should come the alert eye to watch the deviations from the hypothetic normal which the individual resistance or the drug in its action may show in the course of the case.

All treatment by drugs is more or less of an experiment and it is, indeed, in this fact that the enormous number of new drugs daily poured upon us finds its justification. . Many and many an ailment that afflicts mankind badly needs a remedy, but for which, as yet, no remedy is opportune ; and who knows but what in each new drug some human ill may find alleviation ? A chemist's shop is indeed a source of wonder and dismay to me, and I could indeed wish we were less the prey of the manufacturing chemist, but I would not for a moment even seem to discountenance new remedies. What I would discountenance is the giving drugs by rule of thumb. Diseases run in fashions ; I have mentioned one or two that seem to me in fashion now, and there are fashionable drugs which, while the sun shines upon them, become the darlings of Society. Their popularity is enormous—far in excess of their merits ; and by and by they sink into the cold shade of neglect. Who does not even now remember the boom of the antipyretics ? A few of them have remained to us for other purposes ; but as antipyretics, who gives them now ? They are not by any means valueless when given appropriately, but they were rushed for more than they were worth, and they are now buried by later booms, such as animal extracts and antitoxins, and many of these will be buried too. And then as to routine in the treatment of disease. I suppose there is not a single case of gout in the whole world that has not had sodium salicylate and other easily enumerated drugs, and had them freely ; and why ?—because they are supposed to eliminate the cause of the disease. I find that the British public knows far more about uric acid and how to deal with it than I do with all my pains, and what men think they know in this respect, I fear that we, in the first place, and vulgar advertisement in the second place, have taught them. Yet I cannot understand how any reflective mind, making a careful study of gout in its clinical aspect, can settle down and bury itself in the doctrine that gout is a mere question of intake and output, and, if not think of the harm that is done by false doctrine of this kind upon the thousands who are engaged in the hopeless struggle of dispossessing themselves of their fetish.

The open-air treatment of consumption, of which we are hearing much at the present day, is also bidding fair to come under the baneful influence of routine. "The new treatment," though it is hardly a compliment to our environment to call it so. What, think you, does the consumptive and his friend see in this ? He sees a residence for a few months in a home, and a cure at the end of it. Is that what he has any chance of obtaining ? Certainly not, and in proportion to the exaggerated hope will come the bitterness of the disappointment to the sick, and the discredit to us. The benefit

to be obtained in these sanatoria is that there will be learned a habit of life—what we mean by plenty of good food and plenty of fresh air ; and having learned his lesson the tuberculous man will need to practise it all the rest of his life. There is no cure in this treatment as the sick man understands cure ; for although it is true that there is no disease that is more often arrested than phthisis, it is equally true that there is no disease that has a more inveterate tendency to relapse, and I very much fear that when you come to strike the balance between arrest and relapse, the latter has the best of it. Therefore if the open-air treatment is to take its real place and be of any abiding value, the principles of the sanatorium must be introduced into the home.

And that reminds me of another fashionable idea that is now in vogue, and I will call it medical antisepsis. Antiseptics in lung disease have had a long day, tempered only by a momentary fall into heresy when it was proposed by those who ought to have known better that we should be converted into gasometers for the storage of sulphuretted hydrogen, and this was to cure consumption ! I only mention this to show how much we need to keep our imaginations in check in thinking over the cure of disease. However, antiseptics in the lung from all the many inhalations up to iodoform, and finally creosote internally, have had a good innings and have not been without their minor successes, but it was very meet and right that the comparative inefficacy of such nauseous medicaments should drive us back into the arms of the great original antiseptic, fresh air. And perhaps for that reason we have now turned a somewhat cold shoulder to the lung and are directing our efforts to rendering the intestinal canal antiseptic, and I hear daily of creosote and salol and all sorts of other well-meaning drugs being sent on this errand of reform. Far be it from me to decry the value of useful remedies, but I cannot help asking myself the question whether the staunch believers in intestinal antisepsis possess sufficiently cultured and liberal-minded noses to be good advisers to our intestinal apparatus. It is quite evident that stercorin, however much so to us, is not a *persona ingrata* to our colic mucous membrane ; it is indeed bone of its bone ; and it is possible that we might be none the healthier men and women even if our doctors got their wishes in this respect.

One other drug only will I wish to mention to illustrate my point, and that shall be the use of the bromides in epilepsy. Now that these are useful drugs in this complaint no one will question to-day. But long ago it has gone forth from those who are in authority in such matters that after a person has suffered from epileptic fits the drug must be given regularly in considerable doses, and for long periods of time—a year or two, or more—to prevent their recurrence. And this advice is very generally acted upon. There is no doubt that it has become the routine treatment of epilepsy ; and as such I think it often does a great deal of harm, and I am by no means certain that it does any equivalent good.

THE DANGERS OF ROUTINE AND FASHION.

Now all this routine and fashion, and remember I have only taken one

or two instances out of numbers that lie at my hand, I object to, and I do so because it all tends to establish false relationships between the doctor and his patient and let me attempt to show you how. The patient first of all asks us for a name to his disease, and whether we know or not we give him one. In so doing we, as I say, speculate in "futures," and that is a form of business that very often ends in bankruptcy. No remark is more frequent at a consultation than that we must give a name to the disease. I object to giving a name to anything I am not sure about, and when a man says to me, "That is all very well for you, but it would never do for me," I object still more, because the general practitioner is the great instructor of the public in matters medical. I have not a tithe of the influence that he has, and by giving names to symptoms that are doubtful in their significance, he is first of all losing an opportunity of insisting upon the dignity of ignorance; then he is conveying to the public the erroneous notion that we have the power of insight into problems that are at the time inscrutable, and we ultimately end in deceiving ourselves into thinking that we know much more than we do, an idea that is fatal to the progress of knowledge. There are hundreds of examples that might be given, but the various febrile disorders are the most fertile in discords of this sort. It is often absolutely impossible in the early days of typhoid fever to say what is the matter; equally is it absolutely impossible in many of the eruptive fevers to say what of several things will eventually declare itself. It is not ignorance but knowledge trumphalts. When I first entered Guy's Hospital some thirty-six years ago it was a common saying about one of our staff at that time, and certainly one of the best physicians of that day, that he knew so much that he could but seldom be prevailed upon to give a positive diagnosis. And it is true, as Sir Arthur Helps says, in the book from which I have borrowed the title of this address, that knowledge brings doubts and exceptions and limitations that are all hindrances to vigorous statement.

Then a word about the evil of letting the public force our hand in the matter of drug taking. I have already alluded to routine as destructive of all scientific observation, enabling as it does the giver to see only cures and nothing of failures, though they be in very truth staring him in the face. But I am now alluding especially to the numberless occasions when drugs are given, there being at the time no distinct indication for giving anything. There is no doubt that this is a very common and bad fault with us. I do not say it must never be practised. There are times when the sick are not reasonable beings, and unless they have a bottle of medicine to anchor their faith to (oh, shifting sands!) they are in a state of unrest that is positively harmful to their progress. But there are multitudes who are not in this parlous state, who are capable of listening to reason, but who as now, having been taught to look for their prescription or other bottle of medicine, have no idea of the value of advice only, or of the need of the watchful eye. Why, we are all familiar with the "Are not you going to give me a prescription?" when you have been pouring in advice with much prodigality of tongue, and had flattered yourself that you have gained a

disciple ; and there is no need to go far to be absolutely sure that the great body of the public, rich and poor, pay for our prescription, and that they do not value by a button any advice that lies outside it.

But I think there is another reason for this indifference to the value of advice which, although it is perhaps one that savours of the sordid, I must nevertheless touch upon. I have often inwardly contrasted the two professions of law and medicine; how in the one advice pure and simple is sought and found, and the givers thereof acquire positions of milk and honey, and find themselves mounting to the high places of the land. In the other medicine passes for the consideration, and well ! the sellers thereof do not seem to possess themselves of many coveted places of honour. And if you ask me why this is, I believe it to be because we make ourselves too cheap. Advice—just think of it ! A product of so unique a value, that when a man of great experience in the world of medicine dies his knowledge dies with him ; no other man can supply his place, and there is a dead loss to the community of a mine of unrealised information. You all know that very clever signboard in which a bullock is seen gazing yearningly upon a small jar of meat extract and exclaiming, “Alas ! my brother.” But I often wish that I could pot my brothers as they flit from off the stage ; my trouble is that my masters die unbottled. And yet we “give” advice, and there are those in number who not only accept but ask the gift. Oh, dreadful degradation that advice, a priceless article, should fall in value below cheese and butter.

It is told of the late Sir Andrew Clark, with what truth I do not know, that when he was asked to give gratuitous advice he said, “No ; but I will give you the money with which you can purchase it.” Whoever said this was a wise man ; for on the one hand there was in the answer the generosity that knows no bounds of medicine to poverty ; there was on the other the dignity and self-respect that fully understood the preciousness of the knowledge that he had the power to impart ; and we shall never make the public understand the true position of medicine until we set a higher value upon *ourselves* and upon the *advice* we give.

What better illustration could there be of the inutility of thus giving ourselves away, than that so shrewd and penetrating and fair-minded man as Mr. Joseph Chamberlain, in so grave a matter of right and wrong as the question of cheap consultation, should have declared that the question was settled by medicine upon the strictest trades union principles ; and that another man, equally hardheaded if erratic, should agree upon that point, and then proceed to define trades unionism as “doing the worst possible work at the highest possible price.” Cheap consultations ! Philanthropy has indeed there got hold of the wrong end of the stick. Why, it is notorious that such is the generosity of medicine that there is not a needy person in the whole kingdom who cannot, if he need it, obtain the best opinion in the country gratuitously. The clergy, the army, the navy, artists, actors, actresses, clerks, artisans, and others pour into a doctor's room or the hospital asking alms in the shape of advice and never got a refusal. And after it all we are insulted by being called trades unionists —“men who do the worst possible work at the highest possible price !” And I honestly believe we have ourselves to thank for this in great measure, for we belittle the value of our advice in allowing the public to exalt so greatly the supremacy of physic.

That the labourer is worthy of his hire is but one side of the question, and not the best side, for it might be held to cover many a sordid act ; the other and much the more important is surely this, “see to it that the hire is worthy of the labourer.” And although, expressed in these terms, the face value may seem to be one of low ideals, I am far from thinking, as I speak, of any money consideration, but of the higher and nobler recom-

pense of dignity and self-respect. And it is, in part, because I think that to careful observation it must seem that the very nobleness and generosity of medicine does tend somewhat to make us forget the importance to its well-being of these just rewards that I have chosen this subject for my address to-night.

On, then, my comrades, in your noble work, till other voices, other years, shall bid you pause in other ways, according to their seeming. Mark well the hindrances to our onward progress that together we have traced to-night, be more than ever heretofore the steersman at the helm, to guide the sometimes teasy ship between the troubling eddies of the passing thought, and then your Greater selves, firm anchored in "the spirit of the years to come," need reck not

Let the cause ye love
Should languish when your tender toil-worn hands
Are crossed in peace beneath the daisied sod !
The Means wax old and perishable prove,
The End endures eternally, and stands
Above the ages, face to face with God.

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Dec. 1901.

[No. 12.

• AN APOLOGY.

WE are exceedingly sorry that, in noticing Dr. Goodhart's Address in Medicine at the British Medical Association, through a strange and inexcusable oversight, we gave our readers to understand that the distinguished physician was silent about the toxins and antitoxines, now one of the fashions in medicine, and drew a most unjustifiable inference that he has not probably himself yet recovered from the prevailing mania. The fact is the very reverse of this as the following quotation will show: "Who does not even now remember the boom of the antipyretics? A few of them have remained to us for other purposes; but as antipyretics, who gives them now? They are not by any means valueless when given appropriately, but they were rushed for more than they were worth, and they are now buried by later booms, such as animal extracts and *antitoxines*, and many of these will be buried too." How the word "*antitoxines*" in this sentence escaped our eyes we cannot for the life of us imagine. We do, therefore, here offer our unqualified apology to Dr. Goodhart for the wrong that we have unconsciously done him. And we take this opportunity to offer him our best thanks for the pleasure and instruction we have derived from his admirable address.

OCCULTISM AND QUACKERY.

We noticed with pleasure, in our last number, Dr. Goodhart's excellent Address in Medicine before the British Medical Association at their last annual meeting. We have to notice another address in this number, and we wish we could say, with equal pleasure. But we are sorry we have been filled with feelings the opposite of pleasant in reading this address. It was an address delivered not before those who have already entered the profession and are its active members, and are therefore competent to judge of any pronouncement that may be made before them, but before those who are about to enter the threshold of the temple where they are to receive their initiation for qualification to carry on the duties of a most difficult and arduous and, next to that of the minister of religion, the most noble and sacred profession. It is the introductory address delivered at the opening of the Winter Session at St. Mary's Hospital on October 1st. If absolute scrupulosity in stating facts and the utmost caution in advancing opinions are needed in any address, it is in these introductory addresses to medical students. We dwelt upon the importance of these addresses to students no less than to professors in this Journal so long ago as July 1884, and we would not go over the same ground again. We would however remark that as these addresses determine, or may be made to determine, in a most effective manner, the future career of the students, particular care should be taken in their preparation, and no one, with a due sense of responsibility of what he is doing, should undertake to deliver them with a light heart. We wish we could say that Dr. William Hill, Surgeon for Diseases of the Ear to St. Mary's Hospital, had been actuated by this sense of responsibility.

The subject chosen for the address was an opportune one at the present moment when quackery is so rampant both in and out of the profession, and has been handled with considerable ability. "We live in an age," he truly observed, "when there is not only a large survival from the dark ages of superstition and a belief in occultism and in quackery of all kinds in medicine, but there is positively a revival of the most remarkable character of an emotional form of occultism, a jumble of pseudo-sciences and irreligion. I allude to the various forms of faith-healing of

which Christian Science is a type." He then notices the various sects into which this form of quackery has found itself divided. "With emphatic protest on the part of each that he alone holds the key to salvation, and that his system is quite original and unlike any other, comes the procession of 'metaphysical healer and mind-curist,' 'viticulturist and magnetic healer,' 'astrological health guide and phrenopathist,' 'medical clairvoyant,' 'esoteric vibrationist,' 'psychic scientist,' and 'mesmeric occultist.' Some use or abuse the manipulation of hypnotism; others claim the power to concentrate the magnetism of the air and to excite the vital fluids by arousing the proper vibrations, or by equally lucid and demonstrable procedure; some advertise magnetic cups, and positive and negative powders, and 'absent treatment' by outputs of 'psychic force,' and countless other imposing devices. But what is especially interesting, they offer diplomas and degrees by a three weeks' course of study or merely after the reading of a book."

Having proposed to deal with occultism and quackery, Dr. Hill should have given clear definitions of these terms. Instead of this he has simply adopted a definition of only one of these words from Jastrow's *Fact and Fable in Psychology*: "The legitimate recognition of the importance of mental conditions in health and disease is one of the results of the union of modern psychology and modern medicine. An exaggerated and extravagant, as well as pretentious and illogical, over-statement and misstatement of this principle may properly be considered as *occult*." This hardly goes to the bottom of the matter. To give a correct idea of what is meant by the term "occult," we must first know what was its original signification. Originally it signified—"concealed from observation," "existing but not immediately perceptible," and therefore requiring observation and research to bring out that which is so concealed or hidden. *Occult* was thus applied to those sciences or philosophy which could be developed by observation and experiment, and therefore the occult sciences were really the physical sciences by which the hidden secrets of nature were brought out. How strangely has the meaning of the word changed! Words have their fortunes as well as their misfortunes. From signifying what was positive and knowable by ordinary human ways and methods, the word

occult has come to signify what may be positive but not knowable by these means, what in fact can only be vouchsafed to man by supernatural or rather, as we should say, by super- or extra-human, agents and agencies.

A belief in the *occult* in this sense may be a human weakness, but does not necessarily indicate human perversity. An exaggerated and extravagant, statement may be an illogical, over statement, but is not necessarily a pretentious, mis-statement. The individual who entertains the belief may be a deluded individual, but is not on that account an impostor. But occultism in this sense being not amenable to verification by ordinary human means has opened a door for the play of human perversity in a variety of ways upon human weakness.

Quackery is a different thing altogether from occultism, and it should have been defined and distinguished. It has no necessary connection with occultism, though the most consummate quack often has recourse to it. The word "quack" originally meant the cry of the domestic duck, or a sound such as is made by a duck. Thence quackery came to be applied to loud and necessarily boastful pretensions to knowledge not possessed; and as generally such pretenders keep whatever knowledge they possess to themselves, the essence of quackery consists in vain and false pretension and secrecy. The pretension is the laying claim to ability to do a thing which others can not, or to do a thing as well as or better than others, *without* the necessary qualifications, often by means known only to the pretender and which he would not reveal for any consideration, or if he is inclined to do so, it would be for a consideration outrageously beyond its true worth. Hence there may be quackery in all human affairs in which secrecy may be practised, in affairs therefore which are far from having attained perfection, which has nooks and corners as yet unilluminated by positive knowledge. There may thus be quackery in any profession and trade. A man, who would undertake to repair a watch or a steam-engine without any knowledge of the components and their arrangement of either machine, and by means of materials and instruments known only to himself, would be set down as a quack. Similarly a man, without legal training who would pretend to advise in legal matters or

conduct cases in courts of law, would be stigmatized as such, and would not be tolerated for a moment. And so on, and so on. It is the field of medicine which has in all ages been the most favorite hunting-ground of the quack, and this is because it has such weak points as suffering and death which drive men to have recourse to any one who would promise to relieve the one and avert the other.

If one keep these definitions in view one cannot commit the blunder, the unpardonable blunder, that was committed by Dr. Hill in his otherwise able address, when he said: "In more recent times waves of occultism have been marked by the appearance of mesmerism, *homœopathy*, spiritualism, theosophy and lastly, various forms of faith-healing, with Christian Science at the summit of this bad eminence." Mesmerism is a fact, and however inexplicable there is nothing secret, mysterious, and occult about it. Spiritualism and theosophy do, indeed, deal with the super-natural or, as we should prefer to say, the super-human, but knowing nothing of them we cannot speak dogmatically about them. When such men as Sir William Crookes and Dr. Alfred Russel Wallace, and others of no less renown and distinction in positive science, have expressed their belief in one of them, we cannot do better than keep our minds neutral in respect of their truth or falseness. We of course cannot allow ourselves to be swayed by the weight of mere authority, however eminent, and we must wait till personal experience decides one way or the other. But we cannot help here observing that the advance of scientific research is rendering the existence of the super-human more and more possible and probable. The discovery of the Roentgen rays and of the power of electric waves to penetrate solid obstacles so as to render wireless telegraphy an accomplished fact, shows that it is not only a beautiful poetic conception, but a veritable truth that there are more things in heaven and earth than are dreamt of in our narrow philosophy.

Of Homœopathy we can speak from positive, practical knowledge. An honest examination forced our conversion nearly half a century ago, and we have found it to be a system of therapeutics based upon a natural law discovered by observation and experiment. It has been extending its dominion in the profession gradually but surely since its discovery, till it has gained the assent of

the most intelligent, educated and enlightened of the community. It has never appealed to the super-natural, or the super-human. To rank it, therefore, with the various forms of faith-healing as one of the modern phases of occultism, is not only to display profound ignorance of the system itself, of the trend of the progress of medicine as a whole, but to betray a lamentable want of clear knowledge of what occultism is. It ought to be known, if it is not already known, by the majority of the profession that the beneficial effects of homœopathy have been observed in the treatment of the lower animals where *faith* is out of the question.

If Dr. Hill had been content with this passing though contemptuous allusion to homœopathy we would have passed him by in the same spirit. But he has gone further. He has made remarks about it which are offensive in the extreme, and we can not help taking some notice of them, if only to show our readers the extent of the ignorance and the prejudice that still prevail against the only rational and scientific system of medicine among the foremost members of the old school.

We do not see the logical sequence from Moses and other biblical references to the "leading principle of the stupid homœopathy revived a hundred years ago, that like cures like," and which, he says, "was a mere reproduction of a very ancient medical aphorism." But we do not expect any logical coherence in the utterances of a man so blind from ignorance and so actuated by prejudice as to lead him to think that he sees homœopathy in the Delphic prescription of worms from the nose of sheep suffering from staggers for the epilepsy of the Athenian orator Democritus.

If the leading principle of homœopathy is a reproduction of the ancient aphorism, "like cures like," how can there possibly be any tinge of occult, that is, of hidden and mysterious, in it? Hahnemann never pretended that he had discovered the principle itself. All that he did was to develop the principle, to show its true significance, and to point out the way of carrying it out in actual practice. He not only pointed out the way, but made it; and made it broad and long enough for others to follow it easily. His methods of building therapeutics on a scientific basis were the methods by which other sciences are built, the methods of observation and experiment. These

methods were not only open to all, but all who have the interest of humanity at heart were, by Hahnemann and are to this day by his followers, invited to follow in order to build therapeutics on broader and broader foundations. Where is there, we ask again, anything of the nature of occultism in such a system?

This is what Hahnemann says: "This doctrine appeals not only chiefly, but *solely* to the verdict of experience—'repeat the experiments,' it cries loud, 'repeat them carefully and accurately; and you will find the doctrine confirmed at every step'—and, it does what no medical doctrine, no system of physic, no so-called therapeutics ever did or could do, it insists upon being 'judged by the result.'"

"Take one case of disease after another, note it down according to the direction given in the *Organon*, especially in respect of all its discoverable symptoms, in so exact a manner that the founder of homœopathy himself shall be unable to find fault with the accuracy of the report (of course any case selected must be one for which a homœopathic medicine is to be found whose peculiar symptoms are known,) and administer, pure and unmixed, the most appropriate homœopathic medicinal substance that can be discovered for the case of disease in question, in a dose as small as this doctrine directs, but, as is expressly insisted on, *taking care to remove all other kinds of medicinal influences from the patient*; and if it do not give relief, speedy, mild, and permanent relief, then, by a publication of the duly attested history of the treatment *according to the principles of the homœopathic system strictly followed out*, you will be able to give a public refutation of this doctrine which so nearly threatens the old darkness."

This challenge was thrown out so long ago as 1825 when Hahnemann had pretty far advanced in the construction of a *Materia Medica Pura*; and those who accepted it and worked in the spirit of honest inquiry, became converts and remained so, in spite of the professional ostracism to which they were condemned, and the loss of income and reputation which they incurred, a loss which often threatened starvation. And what has been the result of this unswerving adhesion to truth? what but the spread of the truth throughout the world? In Europe the professed

adherents of homœopathy are considerable, though their number would have been far larger had it not been for the violent opposition of the old school which still exercises a dominating influence on Governments. In Germany, the birth-place of homœopathy, the number of homœopathic practitioners is not less than 400, in Great Britain about 300, in Belgium about 100, in France about 70, in Italy about 52, in Russia 52, in Switzerland about 20, in Portugal 20, in Denmark 12. Homœopathy has spread in the far East. In India there are about 50, and in Australia over 20. But if we are to satisfy ourselves as to what rapid and mighty progress the new school has made we should go to free America, where (we mean in the United States) there are not less than 14,000 regularly trained and duly qualified physicians and surgeons.

The triumph of Homœopathy in the United States is represented not simply by the number of its practitioners. That triumph is still more eloquently demonstrated by the number of homœopathic colleges, homœopathic hospitals and asylums and dispensaries, homœopathic societies, and homœopathic medical journals, as will be seen from the list, compiled in 1900, given below :

National Homœopathic Medical Societies.....	10
Sectional or Interstate Homœopathic Medical Societies...	3
State Homœopathic Medical Societies.....	34
Local Homœopathic Medical Societies.....	98
Homœopathic Medical Clubs.....	42
Alumni Associations of Homœopathic Medical Colleges	7
Miscellaneous Homœopathic Associations.....	4
General Homœopathic Hospitals.....	76
Private and Special Homœopathic Hospitals and Sanitariums.....	150
Institutions under Homœopathic Treatment....	69
Homœopathic Dispensaries.....	63
Homœopathic Medical Colleges.....	21
Homœopathic Medical Journals.....	31

In Canada, as reported by Dr. George Logan, of Ottawa, in 1896, "though we have not increased rapidly in numbers, we have secured a permanent basis for our system by legislative enactments, and by our position in the Medical Council. By the

energy of our men, in establishing public institutions—such as the homœopathic hospitals in Toronto and Montreal—we have enlisted public sympathy and support, and thus increased the area of our influence in all parts, or nearly so, of our Dominion. Homœopathy can never be destroyed here, and must remain and continue to be an essential element in the progress of medical science in this Dominion for all time to come.”

This is the system which, according to Dr. Hill, “at the present day is, medically speaking, exploded and discredited.” Discredited it has been and still is by the majority of the profession, by those who from their official position find it so easy to condemn and denounce it. But exploded it never has been. What is meant here by “medically speaking,” we cannot understand. If Dr. Hill means, homœopathy has been found to fail at the bedside, he could not have made a statement more wide of the truth. For, it has not been tried by those who *think* and *wish* it had been exploded, who judge of it *à priori*, who do not hesitate to persecute its adherents without any trial at all.

Homœopathy has been medically exploded, indeed! when the fact is that it has been the means of abolishing the savagery and barbarity in medical practice that used to prevail before its advent—the venesections to death, the actual cautery, the leechings, the blisterings. Where are these now and why and under what influence have they been abandoned? Homœopathy has been medically exploded, when a large portion of its priceless materia medica has been unblushingly appropriated without the slightest acknowledgment and used in doses which, if not actually infinitesimal, are very nearly akin to it. Exploded of course, when a renegade homœopath, whose apostacy was dictated by considerations of pounds shillings and pence, could write a book on materia medica, containing largely drugs strange to the old school because filched wholesale from the new, for which achievement he was hailed as a discoverer, and has recently been awarded the highest honorary degree of a great university.

Dr. Hill thinks that he has given a death-blow to homœopathy by citing the authority of Hippocrates. “He” (Hippocrates), says he, “was a believer in the theory of opposites which shows that he was no homœopathist.” What profound knowledge of the literature of medicine has Dr. Hill in this one

sentence displayed. Because Hippocrates was a believer in the theory of opposites, therefore he could not be a believer in the theory of similars. Dr. Hill forgets, or does not know, that tradition has ascribed to him the saying, "Diseases are sometimes cured by contraries, sometimes by similars, sometimes by remedies which have neither similitude nor antagonism." The fact of this saying having been ascribed to Hippocrates shows that if the father of Medicine was not actually the author of it, he was at least a believer in the principles enunciated in it. Dr. Hill pays a poor complement to himself when he says "Hippocrates, however, with all his knowledge, had his superstitions—he believed in critical days." A belief in critical days is a superstition, indeed, but it is a superstition which is shared in by the most knowing and observant physicians of all ages, including the most renowned ones of modern times. Dr. Hill, by his disbelief in the existence of these days, has only shown his own lack of observing power.

But though, according to Dr. Hill, Homœopathy has been medically speaking, exploded and discredited, yet, "as a means of attracting the more credulous of the public its power, if diminished, is still considerable." We are bound to say that we did not expect this ill-natured insinuation from a man of culture, nor from one who is himself honest in the practice of his profession. As for the more credulous of the public they can well afford to laugh when they include "logicians like Sir William Hamilton and Archbishop Whately,* mathematicians like Augustus de Morgan, engineers like Sir W. Siemens and Scott Russell, statesmen like Lord Lyndhurst, Lord Llanover, and Lord Beaconsfield, and warriors like Field Marshalls Schwarzenberg and Radetsky, (and Lord Roberts,) besides kings, princes, and noblemen innumerable," and others of equal renown for their powers of sifting facts and weighing evidence, and for their sterling practical common sense. Dr. Hill should forgive us if we beg to remind him that to speak on a subject without knowledge is inexcusable quackery when that knowledge is easily available.

* In reference to the detestable ordinance of the Irish College of Surgeons proscribing Homœopathy, the Archbishop said: "In the midst of the disgust and shame which one must feel at such proceedings, it is some consolation to the advocates of the system denounced, to see that there is something of a testimony borne to them by their adversaries, who dare not trust the cause to the decision of reason and experience, but resort to such expedients as might as ably be employed for a bad cause as a good."

PASTEUR AND THE HEREDITARY TRANSMISSION
OF INFECTIOUS DISEASES.

By DR. P. JOUSSET.

(Translated from *L'Art Medical* for November, 1901.)

[We do not grudge Dr. Jousset his enthusiastic admiration for his distinguished countryman, but we cannot help giving out our conviction that M. Pasteur, by the very force of his commanding genius, has left a legacy more for evil than for good. His surgical asepsis, which was the furor in the surgical world, for sometime, has, after doing incalculable mischief in the shape of antiseptic sprays and washes, been relegated to the limbo of oblivion, and has become reduced to simple cleanliness. His vaccinations and serum therapeutics, rough imitations of homœopathy as they are, do not seem to us to have done any good. On the contrary they have been unmitigated evils in many cases. As regards his theory of the transmission of the actual germs of disease, it had the very slender basis of his experiments with the silk-worm. The most important question seems to have been overlooked in the case of phthisis, at least, namely, does the bacillus of Koch, after its transmission to the embryo through the placenta, remain dormant in the organism till the individual arrives at adult age? This is more difficult to understand than the transmission of the disposition to phthisis. Unless it is actually proved that the bacilli do exist and remain inactive in the organism from birth to adult age when the disease breaks out, we must withhold our assent to the theory.—
EDITOR, *Cal. J. Med.*]

PASTEUR, who found for the question of spontaneous generation an irrefutable solution; who discovered the cause of infectious diseases, and from this cause deduced surgical asepsis, vaccination, and serum-therapeutics; studied with reference to the diseases of silk worms the transmission of pébrine; and with the eye of genius perceived in all their details the different modes of contagion and heredity.

Contagion, by feeding with leaves intentionally poisoned or accidentally contaminated with the dust of neighbouring breeding grounds of cattle, or by the hands and clothes of the workmen of

the silk-worm nurseries. Finally inoculations determined by frequent wounds among the worms in the same culture.

Heredity, not the disposition to be sick, but the sporozoön, the agent of the disease.

We confine ourselves to this last point in the work of Pasteur, inasmuch as it furnishes a strong argument in favor of the opinion of Baumgarten and myself upon the frequent hereditary transmission not only of the disposition to phthisis but of the bacillus itself of Koch.

Gartner has demonstrated the passage of the bacillus of tuberculosis from the mother to the embryo by traversing the placenta and its presence in the sperm cells of the guinea pig free from lesions of the genital organs. Notwithstanding this demonstration there is still reluctance to admit this mode of transmission of tuberculosis; it is considered as an exception, and its possibility is contested and it is maintained that the ovules and spermatozoa thus invaded by bacilli can only lead to sterility and abortion. The great lesson drawn from the history of syphilis is incapable of shaking the conviction of physicians who will only see contagion in the transmission of infectious diseases. Is it contagion which can explain hereditary syphilis coming either from the mother or from the father, and causing ravage upon the grown up adult? It is not the simple morbid disposition which has been here bequeathed by the contaminated ancestors, but the disease itself.

Therefore, the ovule in the case of the mother and the spermatozoön in the case of the father contain germs, and nevertheless the fecundation produced by these contaminated elements gives rise to a product which attains adult age. I know that the influence of hereditary syphilis often leads to abortions, to stillbirths, and to infants who succumb in the first months of their birth, but it is contested that in still more frequent cases the product of conception lives, develops, and attains adult age before manifesting the primary symptoms of the disease which he has either from his mother or from his father.

The researches of Pasteur have demonstrated that the sporozoön, lesion and agent of transmission of pébrine develops habitually in the chrysalis and the butterfly and that the eggs of the diseased butterflies contain sporozoa and give birth to more or less

diseased individuals attacked from their birth or at the moment of spinning their cocoon, according to the quantity of sporozoa contained in the eggs.

Each butterfly shutting up corpuscles of sporozoa ought to give birth to diseased eggs. If the butterfly is charged with a few corpuscles its eggs will furnish worms which will either not show them or show them exceptionally in the course of their life time.

If the butterfly is charged with many corpuscles, from the first age of the worm the disease may be known by the corpuscles or by the symptoms. Pasteur adds that it is the same with infants of phthisical parents who only show different degrees and ages (stages) of pulmonary tuberculosis.

From the tables published in Pasteur's work on the disease of the silk worm, the influence of the female upon the hereditary transmission of pébrine would appear to be much more considerable than that of the male.

This conception of Pasteur as regards the hereditary transmission of the sporozoa from the chrysalis and from the butterfly with egg is demonstrated true not only by microscopic researches absolutely authorized by Pasteur, but especially because from this doctrine has resulted a practice which has caused pébrine to disappear.

This practice consists in preserving only eggs absolutely healthy, and absolutely healthy eggs are those which are produced by butterflies free from corpuscles.

Here is the technique of the practice advised by Pasteur, and which always succeeds: At the moment the butterflies pierce their cocoons and then unite male and female, the educator uncouples the butterflies and places each female in a square piece of cloth. She there lays her eggs and is afterwards pinned through her wings in a corner which is folded with the same square cloth. Later on microscopical examination will reveal if the butterfly contains corpuscles, in which case the bit of cloth is rejected and burnt.

By this method all the infected ovules are destroyed, and pébrine has disappeared from the country it had so long ravaged.

ON THE ROLE OF ANOPHELES IN THE TRANSMISSION OF MALARIA.

By DR. P. JOUSSET.

(Translated from *L'Art Medical* of November, 1901.)

[An impartial examination of the bacteriological theory of the transmission of malaria recently put forth shows how men of science in pursuing a subject with ardor become victims of the idols of their own den. Because a particular species of mosquito has been found to be the agents of transmission of the germs (plasmodia of Laveran) of malaria to the human being and other warm-blooded animals and cause development in them of conditions allied to malarious fevers, the conclusion is jumped at that this is the only mode of origin and propagation of malaria, and facts are bent and twisted in support of the new theory, and the presence of the mosquito is made to explain why and how malaria originates from marshy lands. The old observation of people catching malaria, even of the most deadly character, by simply passing through a malarious district for a brief hour or even half-hour, without any mosquito, anopheles or other, having the opportunity of inflicting a single sting,—this observation is altogether forgotten or ignored. We can speak authoritatively on the subject, having ourselves been the victim of the most pernicious malaria three times in our life, and each of these times, we can swear, mosquitos had nothing to do with the causation of the disease. The theory is mischievous, because it diverts the minds of physicians and sanitarians from the real or at least the most frequent and efficient causes of the disease to a cause which is problematic in its nature and insignificant as far as the epidemic spread and virulence of the disease is concerned. Dr. Jousset has, therefore, done a service by drawing attention to this fact and warning us against this newest fad of the old school.—EDITOR, *Cal. J. Med.*]

Since the time Grassi established the relation that exists between paludism and the presence of anopheles in Italy, numerous works have appeared in confirmation of the assertions of the Italian physician.

We recall in a few words the mechanism of the transmission of malaria by the anopheles: When these insects sting a patient in a state of paludism, they suck the sporozoa of Laveran with

the blood of the patient. These sporozoa undergo in the body of the insect a peculiar evolution. They multiply and produce a large number of small fusiform sporozoa which diffuse themselves in the organism of the insect and by particular selection invade the salivary glands.

At this moment the anopheles become a perfect instrument of transmission of the disease. It is known that when the anopheles stings a warm-blooded animal, it pours its saliva into the wound to prevent the coagulation of the blood and by this manœuvre inoculates the healthy human being with sporozoa. Such is the mechanism of transmission of malaria by anopheles.

This mechanism seems proved by numerous enterprises that have been undertaken for its verification; and anopheles, charged with the blood of patients attacked with malaria, were transported into countries free from intermittent fever, and were found to develop the disease in healthy individuals submitted to their stings.

Such are the facts generally admitted in the present day and I have no pretension to discuss them at this moment. But the mind of man and especially of medical men is too hasty in coming to these conclusions; and it is taught without hesitation that the anopheles are the necessary instrument of the transmission of malaria, and that in order to cause the disease to disappear it is necessary to destroy the anopheles.

But other facts have been observed, facts which we are not permitted to neglect, and which have opened to us views altogether different on the etiology and prophylaxis of intermittent fever.

Dr. Etienne Sergent, has published in the *Annales de Pasteur* for October of this year a study which establishes that paludian fevers have disappeared from the valley of the Essonne and that nevertheless anopheles are more numerous there than ever. In England the researches of Nuttall have demonstrated the presence of anopheles in localities from which paludism has disappeared.

A propos of these incontestable and uncontested facts we ask the question of first importance—How, if the anopheles are the ordinary instruments of the transmission of malaria, can we explain the disappearance of this malady notwithstanding the persistence

of the anopheles? It would seem that malaria once installed in a region ought to prosper in it in the same degree as the anopheles, since these insects would continue to transmit the disease from the diseased to healthy men. Nevertheless here are regions whence malaria has disappeared but where anopheles have prospered. It is remarkable that M. Sergent has found more anopheles in the valley of the Essonne than in Algeria, at the Maison Carrée and in the trial gardens where malaria is endemic. We leave the question open on one of its sides, but we are obliged to conclude that for the destruction of malaria there are other things necessary to do than the destruction of these insects.

If we study the etiology and prophylaxis of intermittent fevers far and outside of this ingenious theory, we would easily establish that malaria diminishes and even disappears from countries the soil of which has been rendered wholesome. The damming up of rivers,* the planting of trees in marshy lands, the drying of pools, the clearings and other improvements which change an impermeable soil into cultivated land, such are the principal causes which, by making a country wholesome, cause malaria to diminish and disappear, as in the valley of the Essonne.

We should think, and the thought is natural, that by improving the soil we perhaps prevent the multiplication of anopheles, and this explanation squares perfectly with the new theory; but there are facts well studied by competent men which prove the persistence of the insect and the disappearance of the fever. The question remains still open on this point of pathogeny,—what are the other agents of transmission than anopheles?

* In our country (India) the damming up of rivers is almost invariably followed by out-breaks of malarious fever, most probably because the stagnation of the river stream, partial or complete, thus caused, gives rise to damp in the districts on both sides of the dammed-up river, and damp is an essential cause of malaria.—*Ed., Cal. J. Med.*

EDITOR'S NOTES.

Ovarian Tumour in a Child

Jens Schou (*Ugeskrift for Læger*, No. 27, p. 636, July 5th, 1901) records the case of a female child, 7 years of age, suffering from a swelling in the lower part of the abdomen. There was an ovoid tumour, movable from side to side, reaching as high as the umbilicus, and springing from the pelvis—as was found by rectal examination; it had in the greater part of its extent a smooth outline and a fluctuating feeling; but part of it, to the left side, was more solid in consistence. The urine was normal. Ovariectomy was performed and the tumour along the uterine annexa on the left side was removed. The recovery was rapid; the sutures were removed in thirteen days and the patient got up in seventeen days. The parts removed consisted of a normal ovary and Fallopian tube and of the tumour, which was a parovarian cyst with a dermoid attached to it. The dermoid contained four teeth, a rudimentary alveolar process, and balls of hair.—*Brit. Med. Journ.*, Nov., 2, 1901.

Trauma and Extrauterine Gestation.

L. Seeligmann (*Deut. Med. Woch.*, June 27th, 1901) is not satisfied with the etiological explanation of extrauterine pregnancy, as given by Virchow and others, that a previous local pelvic peritonitis, having led to an alteration of the epithelial lining of the tube, and more especially to the cilia of the epithelial cells, is the original cause of the nonpassage of the fertilised ovum to the uterus. At all events, he says he believes that a large number of cases must be explained otherwise. Three out of four cases of extrauterine gestation on which he operated during the past year, as well as one striking case reported at the end of his paper, and a fifth taken from his past practice, give clear proof that trauma contributed towards the unfortunate accident. In all cases the trauma took the form of contusion of the pelvis, and generally was produced by a sudden falling into a sitting posture. The case referred to above as striking was that of a young woman who had always been healthy and whose last (of two) pregnancy had taken place $3\frac{1}{2}$ years before. She fell from a table on which she had been standing on April 18th. Pain followed on the left side of the abdomen. On May 4th a tumour of the size of a hen's egg was detected, and on the 8th this was removed by laparotomy. The tumour was situated in the left tube, and contained a 3 weeks old fœtus. He explains that the accident on April 18th pro-

bably took place a few days after the fruitful coitus, and this coincides with the fact that a 3 weeks foetus was removed 20 days later. He prefers to deal with all cases which need operation by laparotomy rather than by vaginal section.—*Brit. Med. Journ.*, Nov. 2, 1901.

The Biological Test as an aid in the Inspection of Meat.

A method devised by Uhlenhuth for recognising the different kinds of mammalian blood especially applicable to the detection of human blood in medico-legal inquiries was described in the *JOURNAL* of March 30th, 1901, p. 788. The method consisted in making repeated injections of the defibrinated blood of such an animal as man, into the peritoneal cavity of a rabbit from which a serum is obtained, which, when dropped into a clear solution of human blood, gives a precipitate, but fails to do so with the blood of other species. The same observer has lately published a modification of this method, by which he claims that it is possible to recognise the different kinds of meat, for example, beef, mutton, pork, and to detect the fraudulent substitution of horse, ass, dog, cat, etc. A small portion of the meat is scraped and left to soak in water or normal salt solution, the process of solution being hastened by adding a few drops of chloroform; the extract is cleared by filtering through filter paper or a Berkefeld filter. A precipitate is formed in this clear fluid when a few minims of serum, prepared as above described with the blood of the same species of animal, are dropped into it. Dr. Uhlenhuth desires to call the attention of inspectors of meat to this test; where meat is sold as is usual in this country, in large joints, it is easy to recognise the different kinds by simple inspection, but where meat is sold in such small pieces that it is impossible to say from what animal it comes, as in Japan and as in the smaller stalls of the poorer markets in Europe, such a test may be found useful. Uhlenhuth points out also that the test is capable of application to minced or potted meat or sausages, so long as these have not been cooked.—*Brit. Med. Journ.* November 16, 1901.

Bougie in Peritoneal Cavity after Abortion.

Chambers (*Amer. Journ. Obstet.*, August, 1901). A married woman, aged 23, whose second child was 18 months old, had consulted a female abortionist five months before she came under Dr. Chambers's care. Pain followed some operative procedure, and a tender, yet not very painful, lump developed in the right groin. Of the attempt at abortion she said nothing. Two masses were found in the abdomen,

one about the size of a walnut just above the pubes in front of the bladder, the other of the size of a hen's egg in the right inguinal region. On opening the abdomen the two masses were found firmly fixed. A cord-like band, taken at first for a chain of lymphatics, extended from each mass to behind the transverse colon. It proved to be a No. 8 silk gum elastic bougie. One end was coiled up, resting against the pubes; it was enclosed in a mass of inflammatory tissue. The other end rested on the crest of the right ilium. The apex of the sharp angle formed by the bending of the bougie had almost perforated the transverse colon. Inflammatory bands between coils of intestine passed over the bougie. These bands were broken down, then the track of the bougie was laid open thoroughly and scraped. The intestine was damaged in two places, and the injury repaired by Lembert sutures. Recovery was uneventful. Chambers at first thought that the bougie was a catheter, which had been pushed through the bladder, but found that it was a bougie; then he suspected abortion, and the patient confessed. The uterus was free from any sign of injury. Chambers quotes Sims's case, where there was a mass in the right broad ligament. An incision was made in the vault of the vagina, and a silver female catheter extracted. In Gailard Thomas's case the patient herself thrust the steel rib of an umbrella into the uterine cavity, as she had successfully done before. On this second occasion it slipped. Operation was refused, and the patient died on the twelfth day. A steel umbrella rib, 12 inches long, was found in the abdomen. One end had perforated the diaphragm, and extended 2 inches into lung tissue.—*Brit. Med. Journ.*, Nov. 16, 1901.

Medicine in the Time of Æsculapius.

In an interesting paper read at the Pan-Hellenic Medical Congress recently held at Athens, Mr. P. Kavadias, Inspector-General of Antiquities in Greece, combated the view commonly held that the temples of Æsculapius at Epidaurus, in Asia Minor, in Crete, and at Rome, were schools of medicine as well as shrines. In opposition to all writers, archæological and medical, who have dealt with the subject, he mentioned that the Asclepieia were not hospitals, and the priests were not in any sense physicians. By the records of cures inscribed on the walls of the Temple of Epidaurus he disproved the statements of Strabo and of Pliny that Hippocrates founded his teaching partly on cures wrought in the Temple of Æsculapius at Cos, and even copied all the therapeutic formulæ among the inscrip-

tions in that temple. M. Kavadias contended that the Epidaurus inscriptions themselves conclusively show that no medical art was practised in the temples of Æsculapius in the time of Hippocrates. He argued that medicine was originally a folk-lore, the development of which was altogether independent of religion. The first physicians were called Asclepiadæ ; but, so far from being priests in the temples of Æsculapius, they were empiric practitioners who learnt their art by tradition, secrets of healing being handed down in the family. In the time of the Roman dominion, however, and especially after the beginning of the Christian era, a great change took place. The temples of Æsculapius, while preserving their religious character, gradually became transformed into sanatoria in which sufferers were treated by the priests, but in the light of such medical science as was available. Patients were persuaded by various artifices that the god Æsculapius himself prescribed the treatment, to which they were expected to submit with religious faithfulness. The sick folk slept in the temples, and their dreams were interpreted for them in an appropriate manner by the priests. The hierophantic part of the procedure was the use of what would nowadays be called suggestion, whereby the patients were induced to believe that the treatment was dictated by the god himself under symbols and images. The case was then dealt with by the recognised rules of medical practice. The system had evidently the great advantage of making the patient submissive, and modern practitioners might sometimes be tempted to envy the "metaphysical aid" which the priest-physicians of Epidaurus in its later days could call to their aid.—*Brit. Med. Journ.*, Nov. 16, 1901.

Prolonged Pregnancy.

An essay on prolonged pregnancy, of considerable value written by Taussig, of St. Louis, Missouri, was published in the September number of the *American Journal of Obstetrics*. Issmer, who wrote on the duration of pregnancy in 1889, found that its average length in 912 strong women was 278·6 days ; in 288 weak subjects, on the other hand, the duration was 276·8 days, or nearly two days shorter. The duration of gestation tends naturally to increase with each child until the ninth, then comes decrease. Every pregnancy up to the thirty-fifth year of the mother's life is four to five days longer than that immediately preceding it. Active occupation shortens the average duration of pregnancy, and it is important in these days to remember that women explored through the vagina are confined on

an average 5.2 days sooner than those who are left alone, a difference greater than that between the averages of strong and weak women. Above all, rest prolongs pregnancy more than any other agency. Taussig's own patient was a fat, indolent, young, housewife, aged 27. After having five children and one abortion her period ceased once more after December 7th, 1897. A male child was born on October 26th, 1898, weighing over 11 lbs. and measuring nearly 22 inches in length. The extraction of the shoulder proved difficult. The pregnancy lasted 323 days. There were other features of interest, and the patient became pregnant again, was delivered of a large female child 285 days after the last-mentioned period, and died suddenly one hour later. In his statistics of prolonged pregnancy Taussig rejects cases in which the child was not born living, or not recently dead, in which the child weighed under $8\frac{3}{8}$ lbs., and those in which the pregnancy was not prolonged over 300 days, and in which the data were insufficient for various reasons. He reports 17 cases of true physiological prolonged pregnancy, where the duration exceeded 310 days and the child's weight attained or exceeded 4,500 grams (nearly 10 lbs.). Thus the duration varied between 311 days (Martin, Rigler, Rosenfeld) to 339 days (Weihl), and the average weight of the children was over 12 lbs.; 44 less extreme cases are made by Taussig into a second group, including 27 from Von Winckel's well-known series. The average duration of pregnancy in this group was 311 days, varying between 300 and 348 (Puppe). This case of Puppe's was the longest on record, but the child had not developed in proportion, weighing but $8\frac{1}{2}$ lbs. and measuring 20 inches in length. The average weight of the child in the second group was $9\frac{1}{2}$ lbs. Thus Taussig has supplied medical literature with 61 reliable cases of *partus serotinus* or prolonged pregnancy. Even the most conservative obstetrician, such as Kleinwächter, must acknowledge, says Taussig in conclusion, that this condition occurs in the human race just as it has long been proved to occur in animals. The subject is of some medico-legal importance.—*Brit. Med. Journ.*, Nov. 9, 1901.

A Scientific Study of the Bacillus of the Plague.

The United States Marine Service, ever active in the service of protecting American shores from the invasion of foreign diseases, has just been spending considerable time on the study of the so-called plague and its bacillus. This is another economic question which this country must confront as a result of having large bodies of soldiers in tropical and semitropical countries, with the constant flow and counter-flow of troops.

Bulletin one of the Hygienic Laboratory recently published gives some highly instructive material on this subject, investigated by Dr. Milton J. Roseman. This observer comes to different conclusions from Kitasato, and writes about the viability of the bacillus. Roseman's experiments go to show that the bacillus of the plague is in no sense a tender organism, being easier to cultivate than the lanceolate coccus of pneumonia or the pathogenic streptococci. The organism does not always die in a few days, but may live under proper conditions for months and even years. Roseman himself preserved it even when dry for over four months, and in a temperature of less 20°C.

In the Hygienic Laboratory the organism was obtained from seven diverse sources, and an attempt was made to imitate Nature for its conditions of life. In the experiments it was shown that food products may harbor the infective principle of plague, but in experience food products are not much to be feared as far as their probability of carrying the infection is concerned. Milk is the only exception to this statement, for milk and its products are good culture media for the bacillus pestis. On the surface of food the bacillus dies very quickly. Nor is the plague caused by water, although the bacillus can live for a long time in water containing organic matter, if abundantly inoculated.

Temperature has a wonderful effect upon the bacillus; it is sensitive to slight changes; it may be kept alive and virulent for a long time in the cold, even though dry, but it cannot live long when dry at the temperature of the body. High temperatures such as 70° C. are invariably fatal in a few minutes. It was this sensitiveness of temperature that gave the bacillus its reputation of being a frail organism. When kept moist, the bacillus is not so sensitive, for then it will live a long time in albuminous media at 37° C.

From these laboratory experiments it would be supposed that the plague was a disease that had its endemic foci in cold climates and should not be tenacious in the tropics. Such is only partly the truth in actual practice, however, for there are other ways of spreading the disease in tropical countries, such as by fleas, rats, etc. Sunlight kills the bacillus, provided the temperature in the sun is above 30°C.

Moist, cool garden earth keeps the bacillus alive for a long time, hence it occurs commonly in dirty dwellings; on merchandise and on mail it dies quickly, hence new merchandise is scarcely likely to carry the infection especially in hot weather. But in clothing, bed, clothes, etc., contaminated with discharges it lives long. This is the commonest source of the spread of the disease.

The bacillus may lose its virulence and yet not die at once. This

is an important fact, for an attenuated plague bacillus is probably harmless to man, although it may grow in bouillon.

Gaseous disinfectants such as sulphur dioxide or formaldehyde will kill the bacillus quickly, but there must be direct contact between the gas and the germ. In other words, these gaseous disinfectants are only for the surface. In practical disinfection sulphur is more useful, for it also kills fleas, mice, rats and other forms of animal life capable of carrying the infection, whereas formaldehyde lacks this power. Chemical disinfectants also quickly destroy the bacillus. Bichloride, 1 to 1,000, kills them instantly; 5 per cent. carbolic acid solution in a minute. This bulletin forms a valuable contribution to medical sanitation, especially opportune at the moment.—*Medical Times*, September 1901.

Suture of the Heart.

To the 12 cases of wounds of the heart wall treated by suture, Tg. Watten (*Deut. Med. Woch.*, September 12th, 1901) adds one more, and thereby increases the number of successful cases to 6. The patient, aged 23, received a stab in the right side of the chest with a large clasp knife. He succeeded in reaching his home and then lost consciousness. A medical man applied a few sutures to the external wound and a firm bandage and the patient was removed to hospital. The dressing, which had been twice changed during transport, were soaked with blood on admission. He was extremely pale, wore an anxious expression, and his respirations were rapid and laboured. There was occasional violent coughing. Pulse over 100, irregular and small. In the fourth intercostal space on the right side was an oblique incised wound of about 1 inch in length. It reached to within half an inch of the sternal border. Air entered the wound at each respiration with a loud noise, and during coughing blood spirted out. From the level of the eighth rib there was tympanitic resonance, while at the posterior axillary line (in the dorsal position) there was absolute dulness. The heart dulness was not increased. The sounds were barely heard. The temporary sutures were removed in order to disinfect the wound, and a large quantity of dark blood mixed with air streamed out of the pleural cavity. No wound was found in the internal mammary artery, nor in the diaphragm, but on passing the finger toward the pericardium, a hole was found in this sac and another wound was felt in the heart muscle. During the examination air entered the pericardium, and a noise was suddenly produced which was somewhat like that of water boiling in a closed vessel. Since the right pleura was already opened Watten preferred to

attempt the suture from this side rather than to attack it from the left side. He enlarged the wound to the sternum inwards, and for a few centimetres outwards, then he resected the fourth costal cartilage, and tied the internal mammary artery in the third space. A second incision was made from the sternal edge at the level of the lower border of the second rib, to the sternal end of the first incision, the skin flap was dissected off, the third costal cartilage was divided, and the whole triangular flap of chest wall was reflected upwards and outwards. The pleura was swabbed out, and the lung, which presented at the wound, was pushed back with gauze. The hole in the pericardium, which measured a little more than $\frac{1}{2}$ in., was enlarged downwards to $1\frac{1}{2}$ in., and two strong sutures were passed through the cut edges in order to keep the wound open. The wound in the heart was nearly $\frac{1}{2}$ in. in length. Dark blood trickled slowly from it. The upper end of the wound reached nearly to the base of the heart. Apart from the frequent cardiac contraction, the organ was tossed about in the pericardium, so much that it was at times impossible to differentiate between the individual phases of the heart's action. With a pair of long forceps and a needle-holder, Watten attempted to seize the edges of the wound, but failed to do so. He therefore introduced two fingers of the left hand behind the organ and steadying it for a short space of time, succeeded in passing a deep suture through the upper end of the wound. The ends of the silk suture were held in order to steady the organ, while two more were introduced. All these were then tied, the pericardium cleaned up, and the ends of the suture cut short. No more bleeding occurred from the heart wound, and the action became quieter. A gauze drain was introduced and the external wound was partly closed. The patient did well at first, but on the evening of the second day the frequency of the pulse increased and the respiration became impeded. On removing the gauze drain about $3\frac{1}{2}$ ounces of bloody serous fluid escaped. The pericardium was again drained and the patient improved. After the third day the patient began to improve uninterruptedly, and the pneumothorax rapidly disappeared. He was discharged at the end of five weeks, and two weeks later, on examination, his condition appeared to be quite normal. Watten describes the methods of operation adopted in the other published cases.—*Brit. Med. Journ.*, Nov. 2, 1901.

CLINICAL RECORD.

Foreign.

SOME REMARKABLE HOMŒOPATHIC CURES.

By S. G. A. BROWN, M.D.

Dr. Chapman's "Evolution of a Homœopath" in the July number of the RECORDER recalls to mind vividly what Homœopathy has done for me on several occasions. Not that I am an expert at prescribing—for unfortunately I am far from it—but it is simply the old story, when the remedy is homœopathic to the disease a cure must of necessity result. It seems almost incredible even to one who professes to be an adherent to the Homœopathic Law, that remedies, infinitesimal in dosage, can and do produce such wonderful and almost instantaneous results. But facts are stubborn things, and none are so blind as they who will not see.

1. A bright little girl, æt. nine years, was taken suddenly ill one summer evening. The case was diagnosed as acute meningitis. Fever rose rapidly to 105° F.; headache, which rapidly increased in severity; vomiting; constipation; small, weak pulse; delirium. Matters kept growing worse despite all I could do. When I saw her on the evening of the 5th day she was unconscious, fever 104.2° F., pupils dilated and unequal; twitching of facial muscles; difficult respiration, and bathed in cold sweat. While studying the case I thought, "Can there be a suppressed eruption? Is there anything in Hahnemann's old-fogy theory after all? The child is going to die anyhow, so I may as well play my last card." Accordingly I put 15 drops of *Sulphur* 30 dil. in half a glass of water, and gave a teaspoonful every fifteen minutes. After the third dose she began to breathe easier, and when I left her at the end of two hours she was in a peaceful slumber. Next morning on my arrival I found a beautiful eruption all over the face; temperature, 99.4° F.; patient bright and wanting something to eat. She made an extremely rapid recovery. No other remedy was administered afterwards.

2. A stranger walked into my office eight years ago, asking me to prescribe for a suppuration of the lymphatic glands of the neck. The glands were terribly swollen, some had broken down, and at several places were discharging a bland yellow fluid. Being anxious to attend a hurried call, I gave him some powders of *Calc. carb.* 30, and told him to call again next day. That was the last I heard of the case until this summer, when he returned. Astonishment scarcely expressed my emotions when he told me he had not taken all the

powders as the neck rapidly healed up, and nothing but two small scars remained as evidence of his former disease.

3. I had been prescribing faithfully for an obstinate diarrhoea, but without avail. One morning the patient told me that the affection was so annoying, as it always hurried her out of bed in the morning. One dose of *Sulphur* 1000 and plenty of *Sac. lac.* so constipated her that I had to order an enema. Nine years have gone by and there has been no recurrence of the attack. No doubt there are those who will smile at this, but the lady is still living to verify my statement.

4. A man had been treated for three months for "lumbar abscess." Every day during that time a poultice was kept good and warm over the seat of the affection. He finally discharged the Old School physician and called me in. It was on a Sunday. The room was filled with sympathizing friends and relatives. I found a weak, consumptive-looking individual, propped up in bed and scarcely able to breathe. There was considerable bulging over the left kidney. His body was bathed in a cold sweat. Urine was scanty and highly colored. Temperature 101° F. Edema of feet and ankles. After I had examined him he asked me what was the matter with him and insisted upon knowing. I told him frankly I did not know, but could tell him within twenty-four hours. I wish I had had a kodak at that moment to photograph the ironical (?) smile of my audience. I walked over to the table; found a solution of *Morphia* and a hypodermic syringe. I poured the solution out of the window and closed up the syringe. My patient cried that he could not do without it, as he suffered so much pain, especially toward night. I told him we would try to relieve him (another smile by the audience). I left him some powders of No. 12 pellets saturated with *Lycopodium* 30 dil., telling him to take a powder every two hours, and directing him to save all urine passed until I came next day. Upon my arrival next day I found my patient lying down, flat, sleeping; also found a chamber half full of gravel, pus, urine; diagnosis, pyo-nephrosis. Patient made a rapid recovery and forgot even to thank me; but I thank him, for it was the means of tripling my income in less than six months.

5. A gentleman who had been the round of several specialists for an affection of the right eye went to a prominent eye-hospital in Philadelphia, remained there six weeks, became discouraged and left, as his eye kept on getting worse. While visiting his parents here he called upon me to relieve him of the intense pain until he could consult another specialist. I could see no trouble except an extreme-

ly inflamed conjunctiva with excessive photophobia; but then I was no specialist, remember, and may have been mistaken. Gave him pellets saturated with *Aconite* ϕ and a wash of *Oculendulated Boracic acid*. Result, eye cured in three days.

6. A lady who had been treated internally, externally and eternally for six weeks by an old school physician for subacute cystitis came to me in desperation from the terrible burning and strangury. Gave her a dose of pellets of *Cantharis* 2x dil. in the office and a prescription of the same to take along. After she had taken the dose in the office she said: "Doctor give me something to relieve me, these sugar pills will never do it; give me something strong." I told her to try them and report next day if no better. I did not hear from her for eight weeks, when she came in and handed me the medicine I had given her, saying she did not need it, as the one dose in the office had cured her. She got relief the first day before she got home.

And so I might continue, but time and space forbid. I have seen *Calc. carb.* 30th put a man to sleep where *Morphia* had failed to relieve in a case of renal calculi. I have seen another patient snatched from the jaws of death, from impending heart failure (after diphtheria), by a few doses of *Ammon. carb.* 2x when *Strychnia* had failed. I have seen a soldier home from Santiago, saturated with *Malaria* and *Quinine*, quit shaking within twenty-four hours after taking *Ipecac* 200, notwithstanding he had six weeks of scientific (?) treatment in the camp hospital, New York, after his arrival home. Your humble servant has been promptly cured of toothache by *Coffea* 30x after *Antikamnia* had failed.

But do not imagine my pathway is strewn with roses, for being of the *genus homo* I still have cravings for the alluring fleshpots of Egypt; but after "all others fail" I consult the "Old reliable" *Similia Similibus Curantur*, and success usually crowns my efforts.—*Homœopathic Recorder*, September 15, 1901.

Gleanings from Contemporary Literature.**HUMAN AND BOVINE TUBERCULOSIS.**

*An Introductory Address Delivered at the Royal Veterinary College,
Camden Town, on Oct. 1st, 1901.*

BY EDGAR M. CROOKSHANK, M.B. LOND.,

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GENTLEMEN,—I esteem it a great honour to have been invited to deliver the introductory address, and it is a sincere pleasure to me as a governor of this college to welcome to-day both new and old students. It is very gratifying to all those who have the interests of this college at heart that the number of students for several years has been so well maintained. I congratulate the new students upon the choice they have made in selecting the veterinary profession as their career in life. I congratulate them also upon the advantages which they will derive as students of this institution. The Royal Veterinary College not only stands in the front rank of veterinary schools in the British Empire, but it compares very favourably with those great institutions in France and Germany which have a world-wide and long-established reputation. In this country great difficulties have to be encountered by those who desire to promote scientific education. There is not the same amount of sympathy and financial support which is given to scientific institutions in America and on the continent. And therefore I feel very strongly that those who are responsible for the management of this college may, considering their limited resources, claim great credit for making the teaching so efficient and for placing opportunities for original research within the reach of both the teaching staff and the students.

With very many parents it is a most difficult matter to choose a career for their sons, and therefore it ought to be more widely known that it is a great advantage for young men to pass through a course of training in a veterinary college. Much might be said with regard to the danger of overcrowding the profession, but I venture to think that there is still plenty of room. The ranks of those engaged in private practice have to be filled up. There is a great demand in the army for thoroughly trained veterinary surgeons. Many members of the profession have rendered splendid services in the great war in South Africa, and if the experience of this war leads to the employment of mounted troops in still greater numbers, if, in other words, horses are destined in future wars to play such a conspicuous part, their must necessarily be a still greater demand for the services of those who have to select and to take charge of them. There is also an increasing demand for veterinary surgeons in the colonies. In South Africa and our other possessions the best methods of stamping out animal plagues must occupy the attention of the colonial Governments and thus give employment to veterinary surgeons. There must also arise a greater demand at home for their services. The eradication or diminution of such diseases as bovine tuberculosis could only be attempted by the intelligent cooperation of the public with veterinary officers of health.

There are many parents who send their sons to the universities without having definitely settled upon their future career, and many parents who could not aspire to sending their sons to a university would do well to secure the advantages of a scientific education by sending them to a veterinary college. They would receive a sound scientific training, and the fees for the whole curriculum, exclusive of the cost of living, are less than the fees for sending a boy for one year as a boarder to one of the best preparatory schools. If the student did not eventually practise as a veterinary surgeon the time spent in acquiring veterinary knowledge would be by no means lost. Every well-educated man should have some acquaintance with the subjects which are taught at a veterinary college, such as botany, biology, physiology, chemistry, and even anatomy. Anatomy is of special value in training the intellect. It is an exact science, and the mind of the student is not disturbed by new theories and a variety of opinions. It encourages accuracy in observation, it necessitates an accurate memory, and it trains the hands in delicate operations. As the student passes on to the essentially professional subjects—I mean the recognition, cure, and prevention of the diseases of animals, especially of horses and cattle—it will at once be admitted that there are many occupations in which a knowledge of these subjects can be put to practical account. A student may not ultimately elect to practise; he may prefer to take up farming either at home or in the colonies. He may become an estate agent or be called upon to lead the life of a country gentleman, and perhaps to serve on the "Diseases of Animals Committee" of a county council or other local governing body. In any of these positions the information which he would have received would prove to be of very great advantage.

PRELIMINARY EDUCATION.

In the education of students before they come to the college it is very desirable that attention should be given to foreign languages, especially French and German. Foreign veterinary surgeons have a great deal to learn from our methods, and English veterinary surgeons are equally indebted to the work and experience of their foreign colleagues. Some of the best text-books were written by foreign authors, and if the scientific veterinary surgeon in England wishes to keep in touch with continental opinion, experience, and research work it is an enormous advantage to be able to read the original publications. To depend upon the chance of translation or upon meagre abstracts in English is very unsatisfactory, and many contributions to literature would be quite out of reach. Those who held office as advisers to county councils or aspired to appointments in the Veterinary Department of the Board of Agriculture would appreciate the value of being able to study the reports of the agricultural departments of other nations. The admirable reports of our own Board of Agriculture would at a glance illustrate this point. This is, however, not the only value of a knowledge of French and German. International veterinary and science congresses are becoming more and more popular. The opportunities for exchanging opinions and experience with other nations are

increasing, and the hard-worked veterinary surgeon might combine with the enjoyment of travelling the opportunity for exchanging ideas with his professional brethren by attending these congresses in foreign countries.

I do not require to be told that the veterinary surgeon has to think first of making a living—I am quite aware of that fact; but it must be remembered that travelling on the continent is a very different matter from what it was 20 years ago. The expenses have been reduced to such an extent by cooperation that an opportunity for foreign travel is placed almost within the reach of all. I would not even leave out the students; I should like to see parents encouraging the idea of "students' cooperative tours," thus enabling them to combine a little sight-seeing and the enjoyment of travelling with a visit to the museums and laboratories and school buildings of such institutions as the great Veterinary School of Alfort, near Paris, the Veterinary School at Berlin, the Pasteur Institute in Paris, and the Hygienic Institute at Berlin, where diseases common to man and to lower animals are constantly the subjects of investigation. Travelling scholarships would be of quite as much advantage to veterinary as to medical students.

HIGHER EDUCATION.

I do not propose to discuss the question of the higher education of veterinary students, but I trust that I may be forgiven if I again allude to a subject which I referred to on a similar occasion many years ago—I mean the desirability of conferring a degree in veterinary science. I desire to draw the attention of the leaders of your profession to this question—Why should not the Veterinary College be recognised in the new University of London? I would also again point out what a great advantage it would be both to veterinary surgeons and to the public if the Royal College of Veterinary Surgeons could see their way to instituting a special examination and conferring a Diploma of Preventive Veterinary Medicine. The course of training should be somewhat similar to the course of instruction given to medical men for the Diploma of Public Health. I hope to see the day when every county council and every rural and urban council will appoint a veterinary officer of health, and every applicant for such a post be required to hold the Diploma of Preventive Veterinary Medicine. I hope that in the future more veterinary surgeons will be placed in a position which will enable them to devote their lives to original research. There is an enormous field for investigation in the causation and prevention of diseases of animals.

TUBERCULOSIS.

It would be impossible to give a better illustration of this fact than by referring to tuberculosis in animals, especially cattle. At the recent International Congress in London the relation of bovine tuberculosis to human tuberculosis was prominently brought forward in a paper read by Dr. Koch, and the question is of so much importance that the Government has appointed another Royal Commission to inquire into it. The governors, the staff, and the students of this college are all, I am sure, very proud of

the fact that the researches made by your distinguished principal and the great reputation which he has made by his knowledge of comparative pathology have led to his selection as a member of this most important Commission.

It is instructive and encouraging to the veterinary profession to know that the researches which created most interest at the Congress were those undertaken in different veterinary colleges. Dr. Koch's experiments were carried out during the past two years with the cooperation of Professor Schutz in the Veterinary College at Berlin. It is necessary to refer to these researches in some detail to explain the point at issue and to compare the work and conclusions of Dr. Koch with the experiments and opinions of others who have investigated this subject. Dr. Koch in various ways inoculated 19 cattle with human tuberculous virus and none of them showed any symptoms of disease. On the other hand, cattle inoculated with bovine tuberculosis suffered, without exception, the severest tuberculous disorders of the internal organs. Dr. Koch concluded that human tuberculosis differed from bovine and could not be transmitted to cattle, and he further announced that whether man was susceptible to bovine tuberculosis at all was not yet absolutely decided, and that if such susceptibility really existed the infection of human beings was but a very rare occurrence. Dr. Koch believed that the extent of the infection by the milk and meat of tuberculous cattle and the butter made of their milk was hardly greater than that of hereditary transmission, and therefore he did not deem it advisable to take any measures against it. I must express myself in full agreement with Dr. Koch that if infection occurs at all it is of very rare occurrence, but I entirely disagree with the statement that human tuberculosis cannot be inoculated in cattle, and I must add that I consider Dr. Koch's statement with regard to preventive measures as singularly unfortunate. It conveys the impression, as pointed out by Dr. Hueppe, that Dr. Koch would have us concede to dairymen and milk-sellers the right of selling tuberculous milk. I feel justified in disagreeing with Dr. Koch on these points because in the course of an inquiry on "Tuberculosis in Relation to the Public Milk-supply" which was published in the report of the Board of Agriculture for 1888 I made the following experiment. A perfectly healthy calf was inoculated intra-peritoneally with very virulent human tuberculous sputum and the result was extensive tuberculous deposit at the point of inoculation with hundreds of tuberculous new growths extending from it. The calf died from blood-poisoning 42 days after inoculation and sufficient time had elapsed for the most pronounced infection of the peritoneal cavity. On microscopical examination extremely minute tubercles were found disseminated throughout the lungs and liver. Long and beaded bacilli of the human type were found in these organs and in the peritoneal deposits. This experiment was also made in a veterinary college. It was made in the institution in which we meet to-day, thanks to the great interest taken in the investigation by your former Principal, Sir George Brown. There was no need for me to repeat

this experiment as it was absolutely conclusive, and it does not require any Royal Commission to verify the result. Other investigators in England and America have already confirmed this experiment. Dr. Sidney Martin, in experiments on behalf of the Royal Commission on Tuberculosis, succeeded in infecting cattle with human tuberculous virus. In Experiment 1 four calves received with their food sputum from two cases of pulmonary tuberculosis in man. One calf killed in about four weeks showed 53 nodules of tubercle in the small intestine; the second, killed in eight weeks, showed 63 nodules; the third, killed in about 12 weeks, showed 13 nodules; and in the fourth calf there were no nodules at all. In Calf 3 the nodules in the intestine contained tubercle bacilli. They were absent in the microscopical specimens made of the nodules in Calf 1 and Calf 2, but Dr. Martin pointed out that these nodules were tuberculous although no bacilli were found. In Experiment 2 two calves received at one feeding tuberculous sputum. In one calf killed in eight weeks there were 13 tuberculous nodules in the small intestine and tuberculosis of the mesenteric glands. Tubercle bacilli were found in both sets of lesions. The second calf, killed in about 19 weeks, showed no disease.

Dr. Ravenel, of the Veterinary Department of the University of Pennsylvania, has recently carried out experiments of an equally positive character which he made known at the British Congress on Tuberculosis in London. Four calves were, as in my experiment, inoculated intra-peritoneally with tuberculous sputum. In one case the result was negative, in the other three a post-mortem examination showed that all had become infected with tuberculosis, the lesions in two being quite extensive. On the other hand calves fed on human tuberculous sputum showed no trace of the disease when they were killed for examination. It is not impossible to explain these contradictory results; they are quite in harmony with the view which I hold that human and bovine tuberculosis are distinct varieties of the same disease. Man is not the natural soil of bovine tuberculosis. The attempts to transmit human tubercle to cattle would not be uniformly successful, and experiments which did not entail the direct insertion of the virus into the tissues might fail entirely. It is quite possible that in my successful experimental case the simultaneous production of blood-poisoning diminished the natural resistance of the tissues and rendered the animal markedly susceptible to infection with the virus from a foreign soil. The difference which may exist in the nature of the soil upon which a virus is inoculated must always be remembered. It is well illustrated by the result obtained by the inoculation of human small-pox upon cattle. Cattle do not naturally suffer from small-pox, which is essentially a disease of man, but it can be grafted on bovine tissues in exceptional cases. These experiments are so difficult that many experimenters who have failed have refused to believe in the positive results obtained by others. But variolation of the cow is nevertheless possible, and so marked is the effect of the soil that the highly infectious small-pox of man is transformed into a locally-inoculable, mild, vesicular malady in cattle, and can never again

acquire an infectious character. Sheep-pox may be given as another instance. In this case a highly infectious malady in sheep when successfully grafted on human tissues is deprived of its infectious character and reduced to the condition of a mild vesicular disorder.

All tubercle bacilli can be inhaled and taken with food by perfectly healthy individuals without producing tuberculosis, but if from any predisposing cause there is vulnerability of the tissues it is reasonable to be suspicious of bovine bacilli. As human tuberculous virus can be grafted on to the cow, so also there are cases in which bovine bacilli invade the human tissues. I refer to those cases in which there has been direct inoculation of man. Cooks, grooms, and butchers may suffer from tuberculous nodules in the skin containing tubercle bacilli, but they undergo caseation and disappear. I agree with Dr. Koch in the opinion that human infection can only be quite exceptional. If it were not so, owing to the frequency with which tubercle bacilli occur in milk, cream, butter, cheese, and the quantity of meat derived from tuberculous cows, the inhabitants of every country in the world in which bovine tuberculosis was prevalent must necessarily have been decimated by tuberculous disease. I do not accept the theory that abdominal tuberculosis in children is due to infection from tuberculous milk. Those who advocate this view would appear to set aside the opportunities for infection from a human source. If tubercle in children is the result of infection of the digestive tract there are plenty of opportunities for self-infection when there is concurrent disease of the lungs and there are obviously many ways by which a child might be infected by the mouth with bacilli from a human source. Physicians who have had enormous experience, with tuberculous patients of all ages are by no means ready to attribute consumption in any form to tuberculous milk or meat. Sir R. Douglas Powell in his evidence before the Royal Commission when asked if any danger existed in consuming meat bought in the butcher's shop or in using milk from the milk-pail—i. e., whether the consumption of milk and meat from tuberculous animals might cause the disease in man—replied that he had not met with any cases in his experience which would connect the two facts together. Dr. J. F. Goodhart, consulting physician to the Evelina Hospital for Children, gave similar evidence. I am convinced that any suspicion of danger can be removed without creating a public scare. It is simply a question of better inspection of dairies and any risk which may exist can be met by adopting the precaution in both private and public dairies of destroying "wasters" or "piners" and removing all cows suffering from any disease of the udder. There is no necessity to insist on the boiling of all milk. Unless there are urgent reasons it is not a practice likely to be generally adopted. Boiled milk is very unpalatable to many people and the boiling of milk alters its composition and renders it, in the opinion of many, a danger to infants. Sir R. Douglas Powell and Dr. Goodhart were not prepared to recommend the boiling of milk as a precaution against tuberculosis. Tuberculosis of the bowels is almost unknown in very young children, and it is not very

common even in children of from five to 10 years of age. In Dr. Goodheart's experience cases occurring in children with a distinct family history of tubercle were very widely spread, and it was quite common to find children becoming tuberculous after measles, bronchial pneumonia, whooping-cough, and intestinal catarrh.

As regards any danger from tuberculous meat it is, in my opinion, practically nil. I do not believe that there has been a single case recorded of tuberculosis contracted by eating tuberculous meat. Jews have a very thorough system of meat inspection and yet they are by no means free from tuberculosis. When travelling in the West Indies I found that tuberculosis was by no means uncommon among negroes, and Dr. A. D. Williams of Demerara stated before the Commission that Hindoos and negroes suffered severely. Dr. Williams said that the Hindoos eat very little meat of any kind. The negroes also eat meat in very small quantities, either salt beef or salt pork imported from America, and this is well cooked before it is eaten. They lived for the most part in small and badly-ventilated buildings. Negro children suffered from tubercle. They did not have as much milk as they ought, and usually, owing to the climate, the milk was boiled.

I think that we are justified in concluding that if the carcass is well nourished the meat is perfectly wholesome in spite of the existence of local deposits of tubercle in the organs and glands, which should of course be condemned. The view that an animal in prime condition but with a minute tuberculous nodule was a diseased animal and that the carcass ought therefore to be destroyed was a very extreme view and could not be carried into practice. As a matter of fact, there could be no justification for wholesale destruction of such valuable food. Compulsory destruction of every animal with a tuberculous deposit would almost involve the ruin of the agricultural industry, and it would be quite inconsistent with the continued use of meat imported from countries where such drastic measures were not entertained. No Government would face the question of compensation for every case of tuberculosis, however slight the lesion. It would be quite as reasonable to demand the destruction of the carcass of every animal suffering from an actinomycotic tumour. Actinomycosis is not only prevalent in cattle, but, like tuberculosis, it is also a disease of the human subject. In this country, in America, and in Australia it is still commonly known as "cancer." Cancer of the tongue, cancer of the jaw, cancerous polypus, and cancerous sores are different manifestations of actinomycosis. Quite recently a correspondent in the *Times* has suggested that eating the flesh of such animals may account for the prevalence of cancer in man—a most fallacious suggestion, for actinomycosis and cancer have nothing in common except the popular and misleading designation. It was at one time thought, as in the case of tuberculosis, that the disease in man is derived from cattle, and I have succeeded in grafting the human disease in a calf. They are, however, in my opinion, distinct varieties and I do not accept the theory that man and animals infect each other, but I

believe they contract the disease quite independently and that the micro-organism is probably derived from cereals. Does the tubercle bacillus, like the streptothrix actinomyces, exist outside the animal body? There are many other questions bearing on the life-history of the tubercle bacillus, its exact rôle in tuberculosis, and its relation to other organisms which are closely allied to it both as regards morphology, staining reaction, and cultivation, such as the bacillus of avian tuberculosis, the tubercle bacilli obtained from fish and worms, the bacillus of Rabinowitsch from gangrene of the lungs, of Marpmann from urine, of Mironescu from human faeces, of Karlinski from nasal secretion, of Rabinowitsch from milk and butter, and of Moeller from timothy-grass and the dust of other grasses. It is to be hoped that incidentally the new Royal Commission will throw some light on these points.

To eradicate tuberculosis in cattle and so to ensure the breeding of perfectly healthy stock, and thus to restore the confidence of the public in the supply of wholesome meat and milk, will be a splendid work for veterinary surgeons to undertake and one to which they must direct all their energies. As regards the prevention of tuberculosis in man that must be left principally to the sanitary inspector and the medical officer of health. We must not concentrate all our energies upon the destruction of tubercle bacilli but rather give more attention to other factors responsible for the causation of tuberculosis. The study of tuberculosis in animals may throw some light on these causes, and experience of the disease in man may assist in elucidating the causes of disease in animals. Tuberculosis is peculiarly liable to occur among birds and animals kept in captivity. Poultry and guinea-fowls are often the subjects of this disease, and ostriches and other birds in the Zoological Gardens become infected. In monkeys in captivity the disease occasionally occurs in an epidemic form. Pheasants in preserves are attacked sometimes in large numbers and rabbits in overcrowded warrens. These instances help to illustrate the view that damp and other insanitary conditions, confinement, overcrowding, defective ventilation, heredity, and breeding in and in were the most powerful factors in rendering the tissues prone to tubercle and a fitting soil for the invasion of the bacilli. We must not omit in the case of man the influence of alcoholism which has been so closely investigated by Dr. Brouardel; the influence of previous illnesses, such as measles and whoopingcough, as urged by Dr. Goodhart; and, lastly, the influence of special trade occupations which involve inhalation of dust of various kinds.

There are two points which I will discuss at greater length—heredity and tuberculosis in children. Heredity is of two kinds; there is hereditary predisposition to the disease and hereditary transmission of the virus. There is an inherited susceptibility or weakness which renders many individuals liable to the development of tuberculous disease. Family history plays a very important part in human tuberculosis. Sir R. Douglas Powell states from his experience that 48 per cent. of the cases in hospital suffering from tuberculosis has a previous history of hereditary tuberculosis.

Whether all these cases are cases of hereditary predisposition, or hereditary transmission of the virus, or examples of both, is not determined. I am entirely in agreement with Dr. Klein and Mr. Victor Horsley that in some cases there is direct transmission of the virus and that it may exist for many years in a latent form. Dr. Klein brought this matter very convincingly before the Royal Commission. In connexion with this question of heredity some interesting observations upon tuberculosis in birds have been recorded by Dr. Baumgarten. On a poultry farm a cock developed tuberculosis. All the chickens reared from this cock were tuberculous. There was no evidence that the fowls were infected with either human or bovine tuberculous virus. An identical case occurred on another farm, and these cases have been accepted as evidence of the direct transmission of the virus from the parent bird. Tuberculosis is a rare disease in calves. It seems probable that those cases which do occasionally occur are mostly, if not entirely, the result of hereditary transmission. In discussing the occurrence of tuberculosis in children we may derive some consolation from the immunity of calves. Tuberculosis in children is largely a disease of the poor. It attacks all classes but is extremely common among the London poor and the poor of our overcrowded cities. I would attribute the disease in children to a want of milk rather than the possible occurrence of a few stray bovine bacilli in milk. Plenty of milk, good nourishing food and better hygienic surroundings will do more to diminish the numbers of tuberculous children than any legislation directed against bovine bacilli. In proportion as the slums are removed from our overcrowded cities and the problem of the better housing of the poor has been solved we may expect to see a steady diminution in the amount of tuberculosis in children. I believe that the infectious nature of the disease has been exaggerated. It is quite possible that the theory is fallacious—I mean the idea that phthisis can be caught like scarlet fever or may be compared to typhoid fever is, I think, a mistake. In typhoid fever epidemics at home, in India, and in South Africa we know that apart from cases of individual insusceptibility we have not to consider any other factors except the introduction of the specific poison of typhoid fever. Those in health and out of health fall victims to the disease if they have taken the poison in water or in food. There is no question at all of hereditary transmission or of predisposing conditions which render the subject susceptible to the poison. At the same time the habit of spitting in public places and railway carriages and other conveyances should be prohibited, and the sputum of phthisical persons should be disinfected. Several years ago I carried out experiments proving that sputum treated with 20 per cent. carbolic acid was rendered quite inert. Guinea-pigs inoculated with the carbolised sputum remained perfectly healthy and all control animals were infected without exception. There is no need to create a panic or raise an outcry for legislation to make spitting in public places a matter to be dealt with in the police-court. That the virus of tubercle scattered far and wide becomes a constant source of danger to all who inhale the air is not a theory.

which is supported by experiment and experience. Dr. A. Ransome maintains that in a well-ventilated room it is rendered harmless. Tuberculous sputum was exposed in the ventilating shaft of a hospital and proved virulent to rodents, but similar sputum exposed for the same time in Dr. Ransome's room, which was ventilated and well lighted, was absolutely harmless. Dr. Klein placed a number of guinea-pigs in cages in the ventilating shaft of the Brompton Hospital very many years ago. They were kept there for several weeks and all of them became tuberculous. We must not too hastily draw conclusions from experiments upon small animals such as rodents. In the same institution it was found among all those who had been connected with it—nurses, porters, physicians, surgeons, and so on—that the mortality from consumption was quite within the average of ordinary mortality. I am convinced that if tuberculosis were readily conveyed from person to person that marriage of individuals who become or are consumptive would be a fruitful source of direct infection. We should hear constantly of instances in which married people had infected each other with tuberculosis owing to the opportunities which occur for conveying the disease by the breath and in other ways. It is necessary to lay great stress upon the difference between experimental inoculation and natural infection. I cannot therefore regard tuberculosis as catching in the same sense that scarlet fever is catching, nor can I regard the comparison to typhoid fever as one that is not very misleading.

Those who aim at eliminating the conditions which I have referred to as powerful factors in the production of tuberculosis will render the greatest services in the crusade against tuberculosis in animals as well as in man.—*Lancet*, November 2, 1901.

THE PERSONAL FACTOR IN TUBERCULOSIS.

*An Address Delivered before the Liverpool Medical Institution
on October 24th, 1901.*

BY SIR DYCE DUCKWORTH, M.D., LL.D. EDIN., F.R.C.P. LOND.,
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Mr. President and Gentlemen.—It will not be denied that the art of medicine, and the science of pathology in particular, are at the present time largely dominated by conceptions derived from bacteriology. The progress of medical knowledge in the past has, with each fresh acquisition in any part of it, been commonly accompanied by a wave of enthusiasm which spread itself widely over the profession. In the face of any new revelations in science the tendency is to lose sight more or less of the older conceptions regarding the point in question. The lines of thought and action are henceforth projected vigorously in the new direction, and the older ideas, if not actually excluded, tend to be ignored or possibly forgotten. That this has occurred in respect of the doctrines of bacteriology can hardly be disputed, though all of us readily admit that these in themselves have constituted one of the most momentous triumphs of modern medicine. At

such a time it becomes, as I believe, the duty of teachers of medicine to place these new doctrines in appropriate relation with those that have hitherto been held on the subject in question, and to indicate how the new teaching either supports or subverts the old. I have always agreed with the opinion expressed by the late Sir William Jenner that dogmatic teaching is essential for the student, and that it is unsafe, with a view to his future career, to allow any suggestions of doubt or any nebulous conceptions to occupy his mind. The faculty of apprehension and clear thinking has to be cultivated in the young. Doubts and difficulties will assuredly not fail to assail the mind in due time. Old or erroneous doctrines may then be more safely discarded and cut adrift, but they will be replaced by others; and the mature man, having learned to act on principles, will thus always have a faith to guide him. Otherwise he is apt throughout life to be the sport of shifting winds of doctrine and to be devoid of any firm or established principles.

I am led thus to preface the observations which I am about to make respecting the views which are at the present time much occupying the mind of the profession in regard to the modern doctrine of tuberculosis. We are apt to be enamoured by startling revelations in our art which disclose to us new vistas, and bid fair to herald the dawn of a day in which we are to be equipped with fresh powers wherewith to combat maladies which have hitherto baffled us. If we calmly take our course at such a time and are not so overcome by enthusiasm as to cast aside or to forget all the older conceptions that have been held on the particular subject we do well. I think that it must be admitted that some amongst us have been carried away by the latest teaching which has revealed to us the intimate nature of tuberculosis; that they have almost, if not altogether, lost sight of one of the most important elements concerned in the question—to wit, the *personal factor*, or the relation of the host towards the intruding and infecting parasite. Yet this is surely a matter of supreme importance. A perusal of most of the literature of the subject as presented to us to-day distinctly leads to the idea that human beings the world over are in constant risk of infection by tubercle bacilli, which are ever ready to alight upon them and to work out there malign developments in some fashion. I believe that there are not a few amongst us who are deliberately prepared to assert this view of the case. I propose in this communication to deny this conception, to try to indicate what manner of persons are those who most readily fall a prey to tuberculosis, and also to point out some of the conditions which prevail in those who manifest resistance to, or absolute immunity from, this scourge. We are familiar with the varying degrees of susceptibility to tuberculosis met with in different classes of animals; in man there are evidently great difference in regard to predisposition to tuberculous infection, and the same varying degree of immunity is also witnessed in him towards many other infections.

In order to discuss this matter it is necessary to revert to some of the teachings of the older clinicians who had to face the problem in their day,

and who, unprovided with the modern methods of research, formed opinions of weight and cogency, founded on close observation and a patient consideration of the facts which came before them, exactly as they come before us. A study of their views should at once convince us that the whole field of clinical medicine is not covered by modern bacteriology, nor yet by modern pathology. As practising physicians we have to deal with humanity, that is, with individual human units, and the latter are not like so many ninepins turned off a lathe and out of one block. If we treat diseases and not patients, we may be scientists, but we are certainly not physicians.

It cannot be denied that the liability to tuberculous infection is limited, that certain persons are distinctly more prone to fall a prey to it than others, and that, happily, the majority of mankind presents a resistance to it, no doubt varying in degree, but in many cases amounting to practical immunity. It is surely important to recognise such facts, and to try to learn the significance of them if we can.

We have first to discover the peculiarities of those persons whose bodies afford a suitable nidus, or resting place, for the parasitic invasion and development of tubercle bacilli. This problem has only come before us since we have learned that a specific microbic and particulate element is the *causa vera* of tuberculosis. The older physicians had no such knowledge to guide them in their conceptions of the pathogeny of tuberculosis. The heredity of tuberculous disease was for them a fact which they could not dispute. Tuberculous parents produced children who sooner or later either developed the same malady or remained frail and delicate. This heritable tubercular tendency attached, as they believed, to the intimate textures of these individuals, and was ready, under certain provocation, to manifest itself in the lungs, skin, glands, or bones. Although they could find no morbid anatomy in such cases before the tuberculous process declared itself in some part of the body they regarded the quality, habit, and tendencies of these particular bodily tissues as differently endowed from those of robust persons void of this peculiar tendency. To this condition or diathetic habit of body they applied the term "scrofulous" or "strumous"—one seldom indeed met with in these days, and discarded for various reasons, none of which, I will add, appear to me to be justifiable. The word "scrofula" has always been offensive to the public and the term "struma" has often replaced it euphemistically. Both terms have almost ceased to have any significance in the professional mind since the discovery of Koch, and now we find it deliberately asserted by many pathologists that there is no such condition as that denoted by these words—that, in fact, struma is neither less nor more than tuberculosis. The recognition of Koch's bacillus has, in their opinion, compelled us to abolish the old conception of scrofula. No struma without tubercle bacilli, they affirm, and I suppose it will then be admitted that everyone infected with tubercle consequently becomes strumous. If this is the case, scrofula, as formerly understood, has necessarily ceased to be. As this idea has certainly been published and no one has ventured to offer objection to it so far as I am aware, I will strictly and absolutely deny this declaration. It is a narrow conception of the bodily condition denoted by the term "struma" to imagine that it is vulnerable alone to tuberculous influence, for it is over-sensitive to all irritants and infections.

Let us inquire in detail as to the peculiarities of this condition of body as we recognise it clinically, for none but pure pathologists who are not practising physicians can possibly doubt its existence and wide prevalence. It is not in accord with modern teaching anywhere but in France to discuss or to appreciate any particular habits of body or diathetic conditions. These are now regarded as mediæval and effete lucubrations of the older physi-

cians who evolved them out of their inner consciousness, as conditions which represent nothing that we, with our superior knowledge and attainments, can recognise nowadays. To hold such a view is, in my opinion, to be possessed of very inferior clinical instincts, and to be void of that accurate and penetrating observation which is necessary for the detection and comprehension of many morbid conditions which come before us.

According to Osler, "scrofula is tubercle, as it has been shown that the bacillus of Koch is the essential element." As I have just remarked, many of our modern pathologists take this view. My friend Mr. W. K. Treves, of Margate, whose clinical experience is very large on this subject, and to whom I wrote for his opinion, believes that "scrofula is synonymous with tuberculosis in some form or other and that a scrofulous habit of body is already tuberculised." "Given no tubercular bacilli, there is no scrofula." He recognises, however, "a class of individuals who are especially liable to tuberculous disease in whom it is difficult to stop, and especially prone to recur." "They are flabby, inclined to stoutness, with a thick coarse skin, much cellular tissue, purplish or dusky complexion, and have a poor circulation," but he is not aware if such persons can be called scrofulous before they manifest tuberculous disease. He recognises, further, that these subjects are vulnerable to any variety of irritant and recover badly from injuries. "They are always catarrhal and suffer from congested and unhealthy throats." I am in full agreement with the latter observations. They relate to the class I have in my mind, to those who are as yet free from tuberculous manifestations, although especially prone to be infected. They are of a scrofulous or strumous habit of body, as yet untainted. We surely see many examples and we certainly cannot regard them physiognomically or texturally as types of any other condition than that of scrofula. To use Sir John Simon's words, I would regard such subjects as "inheritors of an imperfect pattern of development" in the same way as we conceive others to inherit a disposition to gout, rheumatism, or cancer, "an inherited personal and particular law of development, which affixes a something peculiar and individual to their passage through each period of their existence."

Sir Thomas Watson held the same opinions. "The formation of tubercle," he wrote, "is closely linked with the existence of the scrofulous diathesis," but he distinctly recognised scrofulous manifestations as occurring independently of tuberculisation, and noted that the latter was modified by the variety of inflammation which existed in the scrofulous subject, — a point that has received but little recognition anywhere. I will grant that the term "scrofulous" is inadequate to express all that is properly denoted by it. Originally, it was applied to the swollen condition of the neck due to adenitis and periadenitis, whereby the patient thus affected assumed somewhat the aspect of a breeding sow (*scrofa*), that is, void of the ordinary constriction of a human neck, and the term "struma" was also employed to denote a scrofulous swelling. But this condition, as rightly understood, is not expressed merely by a local adenitis, which is but one indication of it. A scrofulous habit of body means a great deal more than this. It may be etymologically correct to regard a cervical adenitis as scrofula, but from a clinical point of view we must have regard to a widely-spread and specific quality of tissues which is impressed upon the entire organism. No more classical description of the physiognomical features of this habit of body has ever been given than that by Watson. It was founded on shrewd observation, and the portraiture thus depicted is not seldom brought before us, and may be recognised if we will but honestly regard it. The two types of "pretty" and "ugly" struma are still with us, and we can plainly see that they are the products of the same disposition, though modified. With our present knowledge of the influence of hereditary syphilis on the bodily

textures we have no need to regard the features of the "ugly" variety of scrofula as modified by the particular taint. It would be well if the younger physicians read and pondered Watson's lucid lectures on the scrofulous habit of body. Modern text-books completely ignore this teaching and appear to regard the whole question of tuberculosis as finally settled by Koch's discovery. This is certainly not the case. Albeit, we are not to expect to recognise the features of scrofula in their classical form in every example of it, but we may often discover the presence and influence of this constitutional frailty by a study of the ailments, and the special characters they assume, in those who are impressed by it.

The opinion of Sir James Paget on this matter was clear and decided. He defined "scrofula, or struma, as a state of constitution distinguished, in some measure, by peculiarities of appearance even during health, but much more by peculiar liability to certain diseases including pulmonary phthisis. The chief of these 'scrofulous' diseases are various swellings of lymphatic glands, arising from causes which would be inadequate to produce them in ordinary healthy persons. The swellings are due sometimes to mere enlargements, as from an increase of natural structure, sometimes to chronic inflammation, sometimes to more acute inflammation or abscess, sometimes to tuberculous disease of the glands. But besides these, it is usual to reckon as 'scrofulous' affections certain chronic inflammations of joints, slowly progressive ulceration of bones, chronic and frequent ulcers of the cornea, ophthalmia with extreme intolerance of light, but with little of the ordinary consequence of inflammation, frequent chronic abscesses, pustular cutaneous eruptions frequently appearing upon slight affection of the health, or local irritation, habitual swellings of the upper lip..... Certainly these are not all tuberculous disease." The term "scrofula" includes, he declared, some diseases which are, and many which are not, distinguished by the production of tuberculous matter. Alluding to the proposal to make "scrofulous" and "tuberculous" commensurate terms, he considered it to be doubtfully practicable. "The relation between the two is that the scrofulous constitution implies a peculiar liability to the tuberculous disease, and that they often coexist." "Many instances of scrofula exist with intense and long-continued disease, but without tubercular deposit, and as many instances of tubercular disease may be found without any of the non-tuberculous affections of scrofula."

These opinions were published long before the discovery of tubercle bacilli, and it had still to be shown that all the alleged scrofulous disorders just described are aroused by, and dependent upon, tuberculous invasion or its influence in any form. I greatly doubt if this can be proved. No one would venture to assert, for example, that ciliary blepharitis, so common in strumous children, is dependent on tuberculosis. We must then regard it strictly as a variety of strumous inflammation. Paget was cautious in stating that the substance found in lymphatic glands commonly known as "scrofulous" matter could not for certain be known as truly tuberculous matter or degenerate lymph or pus. We can tell now whether this be so or not, and many discover that sometimes we are dealing with the one and sometimes with the other.

In discussing this question, Professor Clifford Allbutt remarks: "Whether scrofula is always due to the tubercle bacillus, or always associated with it, is not yet decided. It seems probable that scrofula may arise by the agency of microbes other than tubercles; again, that, originating independently of tubercle, on it tubercle may afterwards supervene; and, once more, that scrofula may be due to tubercle, primarily or even exclusively. No doubt these problems will soon be settled." These hypotheses indicate a shaking of the old faith which has occurred since Koch's discovery. I do not believe that we have sufficient justification for a change

of opinion on this matter. We see more clearly how certain conditions, induced either by inheritance or by acquirement, provide a suitable soil for the specific infection. Respecting acquired conditions which may render persons of originally good constitution liable to tuberculous infection, we know that these are all of a character to induce a lowered vitality and so to render the bodily textures unfit to resist the onset of tuberculosis. The inherent immunity appears to cease with a lowered standard of health, more or less according to the nature of the debility and the degree of intensity of the infection. I hold, then, that a scrofulous person is not, and need not be, a tuberculised person.

We meet with another class of subjects who present a marked resistance to tuberculosis in those who manifest a proclivity to gout. In the offspring of gouty parentage and ancestry it is most rare to meet with any strumous indications or disorders. Tuberculosis in a gouty subject is rarely witnessed and, in my experience, its progress is either very slow or apt to be arrested. There is thus a manifest antagonism between a gouty and a strumous proclivity. We may further note that a line of treatment which is appropriate to those who are goutily disposed is unsuitable for strumous subjects, and that what is bad for the gouty is good for the scrofulous—to wit, animal food and wine. The presence of a strain of gout in a strumous subject is thus a saving grace for the individual, modifying the tendency and course of any manifestation of the latter in a favourable way.

I maintain, then, that there is a class of persons who by inheritance, or acquirement, owing to various debilitating conditions, are frail and delicate, endowed with a specific proclivity to become gravely affected by irritants of all kinds, and especially prone to infection by tubercle bacilli. Such persons are of delicate constitution and are apt to manifest this delicacy in various ways throughout life, such developments indicating their scrofulous habit of body. They may never become tuberculous, although always scrofulous. The latter proclivity may blend with other habits of body and seriously modify the ailments induced by them. We have not to wait for tuberculous invasion to occur before we pronounce them scrofulous, since they carry with them the features and characteristics of the scrofulous condition beforehand.

It is therefore a question of tissue or soil-proclivity in the particular host which is to harbour the tuberculous microbe. The ailments of the strumous individual are not necessarily of a tuberculous quality, and the error in modern teaching, as I believe, is to assert that this is the case. When tuberculosis occurs at any point in a strumous subject we must certainly regard it as such, but we have no justification in assuming the existence of it before such manifestations are present. Some have imagined that the indications of scrofula, as properly recognised, are due to the existence of some pre-existing condition of tubercle bacilli in the tissues, but we have no knowledge of such a condition, nor, indeed, of the extra-corporeal stages or environments of the bacillus anywhere. It has even been asserted that the hereditary transmission of the microphyte constitutes the unique and exclusive method employed by nature to propagate tuberculosis, but these organisms are then in a purely passive or latent condition. If no active tuberculosis occurs during the life of the affected individual the germs are supposed never to have been aroused into activity. This is, of course, a pure hypothesis and cannot be accepted without absolute proof (Cohnheim and Baumgarten). We have some trustworthy facts to support the belief that the fetus in utero may be directly infected by tubercle bacilli. Women suffering from advanced phthisis have borne children in whose organs—lymphatic, liver, spleen, lungs, and endocardium—have been found bacilli of tubercle. The placenta is infected in these cases and is doubtless the medium of contamination. Dr. J. W. Ballantyne of Edinburgh, who

has reported cases of this kind, believes that the problem of tuberculous heredity pertains to the general period of intra-uterine life, and wisely remarks that "a healthy placenta is the best friend that the foetus of a tuberculous mother can have." With these facts before us we cannot deny the direct transmission of tuberculosis as a possibility, but there is no reason to believe that such instances are of common occurrence, and we can in no way admit that they alone constitute the type of case which should be regarded as scrofulous, for these infected subjects are either still-born or if born alive, not viable. A similar transmission is met with, though rarely, in the calf.

I have already quoted the opinion of Osler to the effect that "scrofula is tubercle," but I find that he materially qualifies it, if he does not practically deny it, by adding, "After all, as Virchow pointed out, increased vulnerability of the tissues, however brought about, is the important factor in scrofula." That is exactly my contention.

There remain to be mentioned, amongst causes which diminish resistance to tuberculous invasion, or in other words, promote proclivity or vulnerability to it, the abuse of alcohol, the occurrence of syphilis, of saccharine diabetes, and of cancer, the latter proving inimical to the spread of it, as Dr. Sidney Martin has pointed out, even if the condition induced by it tends to invasion of the body.

I have alluded to the specific changes accompanying tuberculosis which are witnessed in scrofulous subjects. The process is modified in them, and the associated inflammatory products tend to soften and break down. In the case of gouty subjects the process is varied; there is less tendency to soften, and the products tend towards sclerosis, fibrosis, and calcification, thus inducing arrest and obsolescence of the lesions. We thus see how the particular habit of body avails to modify the phenomena and course of a definite infecting process. I maintain that these facts in pathology are now too much lost sight of, and that we have been of late too much concerned with the bald facts of bacteriology and infection in regard to the whole subject of tuberculosis. We must turn aside and consider the condition of the host in this matter.

We may, I believe, regard it as certain that for the production of tuberculosis two factors are necessarily concerned: (a) the parasite, and (b) the nature and condition of health, or diathetic habit, of the host. Our modern pathologists "reckon without their host." We fail in comprehending many pathogenic conditions if we disregard the personal facts in each case. Thus uricæmia as one factor does not explain the production of gout; rheumatic poison as a single factor will not explain the production of chorea. In these and other morbid states, the condition of the organism, attacked or invaded by matters which are toxic to it, has to be reckoned with, and its determining influence for good or for evil is of supreme importance. If we pay due heed to this question, we cannot fail to see that our duties lie in the direction of fortifying by all means those subjects who from any cause are more than others prone to infection. Our warfare is not to be confined to the parasite alone. We do well to intercept it and to destroy it everywhere. But we have also to make our frail and predisposed subjects robust by securing for them appropriate environment and adequate and suitable dietary, and to follow up their special ailments with assiduity till recovery is well established. We come too late into action if we wait till the enemy has entered the gates. We have to anticipate his assault and to challenge his entry. If we do this, and thus pay due regard to the personal factor in tuberculosis, which, from a clinical standpoint, as I maintain, we are bound to do, we shall not improbably do more to avert this terrible scourge from humanity than by any other course of procedure we may decide to follow.

Lastly, I will venture to say that we hear too much in these days of the so-called "cure" of tuberculosis. This is an improper term to apply to cases of this disease which have progressed favourably and in which the local disorder has become quiescent. As we well know, there may not seldom be a recrudescence and a relapse of the process at any period during the lifetime of the patient. We are not entitled to regard the most favourable termination of tuberculous lesions as constituting anything more than an arrest of the process, as has been well pointed out to us by Dr. James Edward Pollock, Dr. C. Theodore Williams, and, more recently again, with all the weight of his authority, by Virchow. If we can determine the peculiar habit of body and predisposition of the affected individual, we may sometimes be enabled to frame a more certain prognosis as to the quality and completeness of the arrest in particular cases. More than this we cannot do.—*Lancet*, November 9, 1901.

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तदेव युक्तं नैषज्यं यदारोग्याय कल्पते ।
सचैव निषजां श्रेष्ठो रोगेभ्यो यः प्रमोचयेत् ॥
चरकसंहिता ।

That alone is the right medicine which can remove disease :
He alone is the true physician who can restore health.

Charaka Samhitā.

EDITED BY
MAHENDRA LAL SIRCAR, C.I.E., M.D., D.L.

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